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Granddad to grandson–passing along the bluegrass beat (p. 68)

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March 1993

Smithsonian

Volume 23, Number 12

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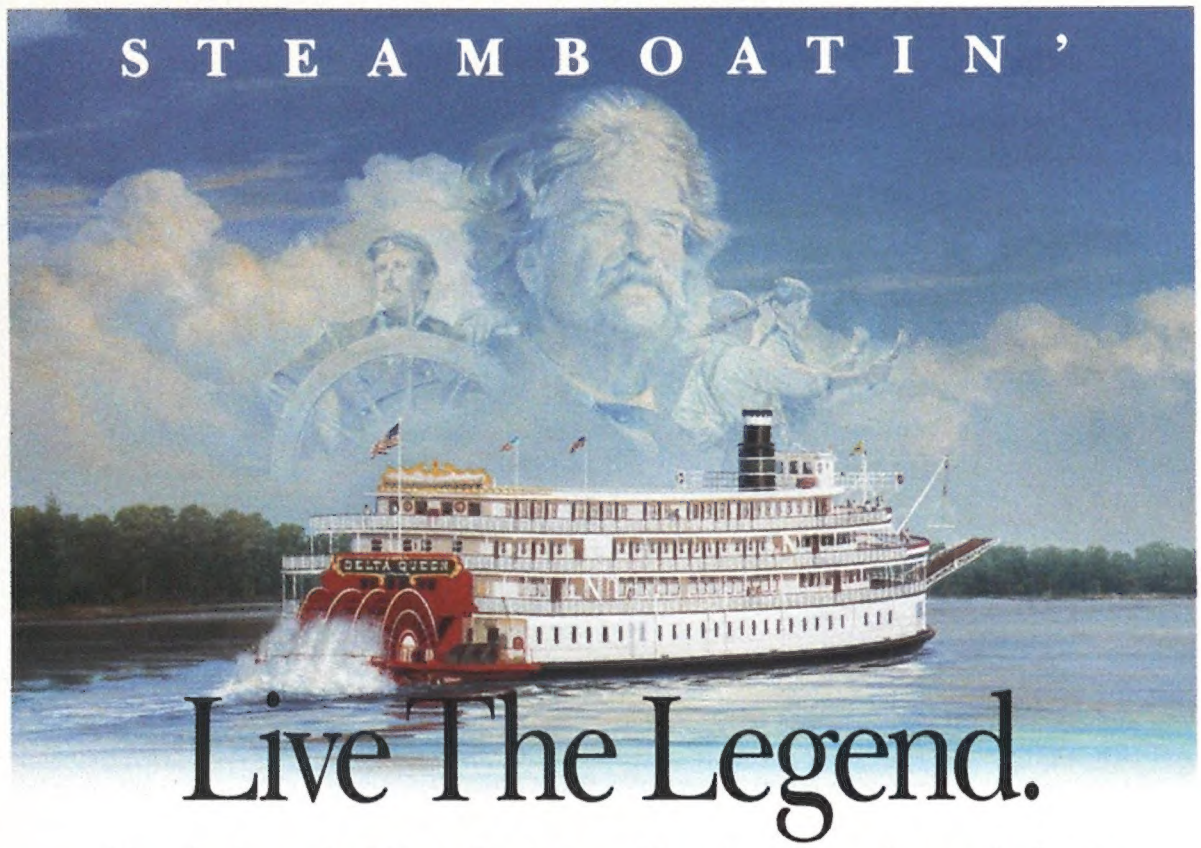

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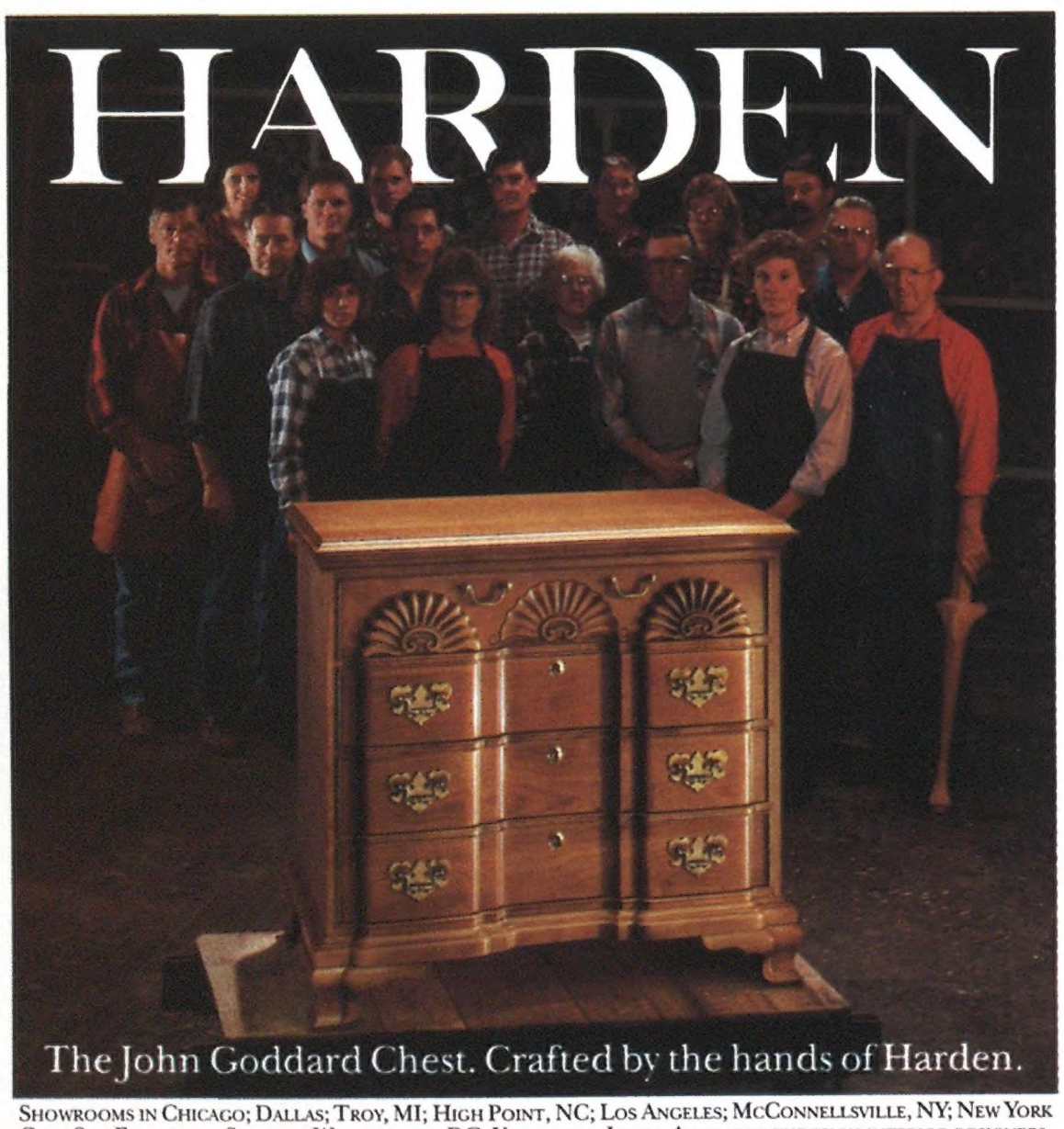

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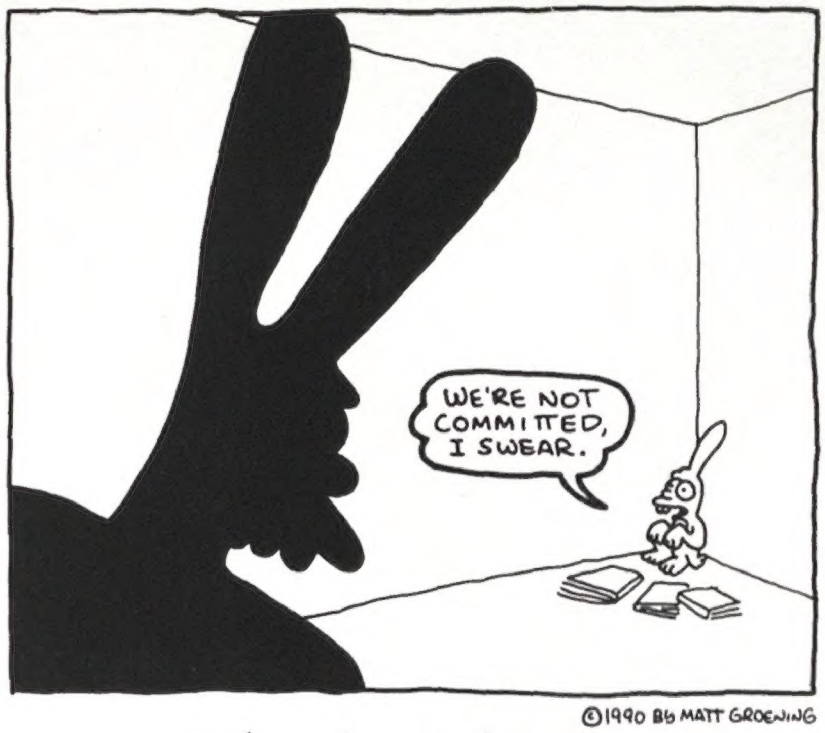

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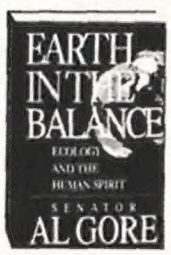

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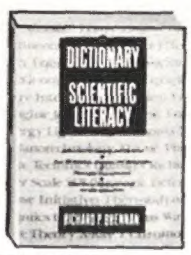

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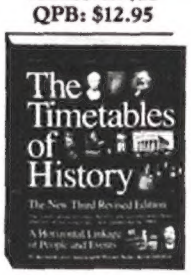

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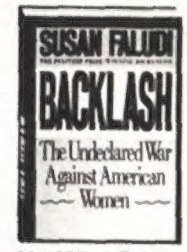

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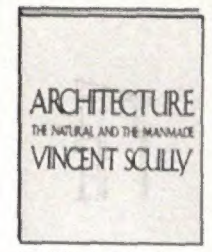

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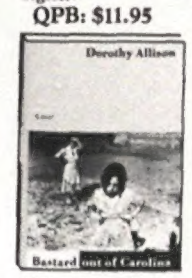

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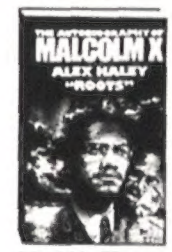

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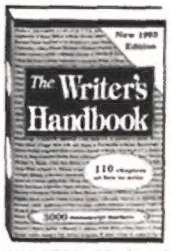

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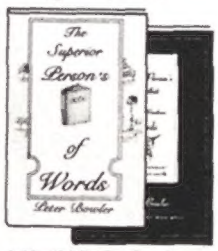

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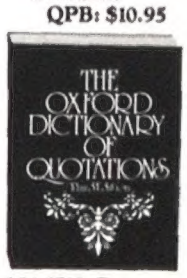

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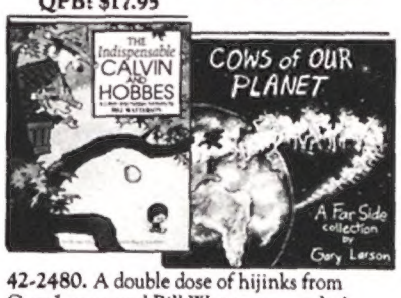

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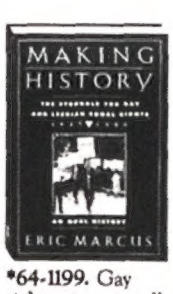

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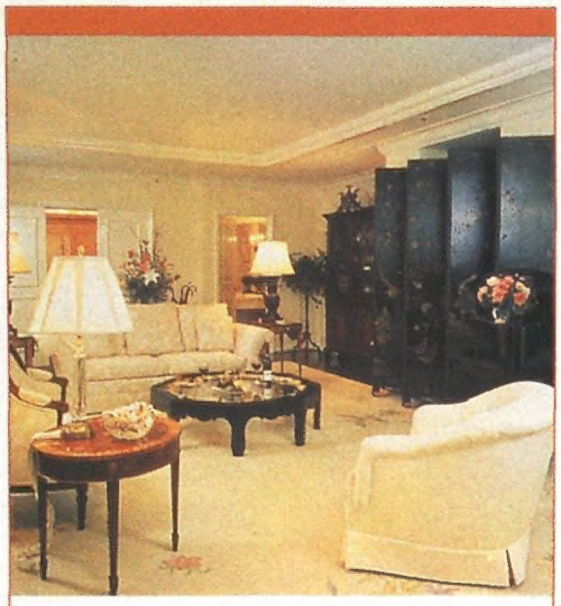

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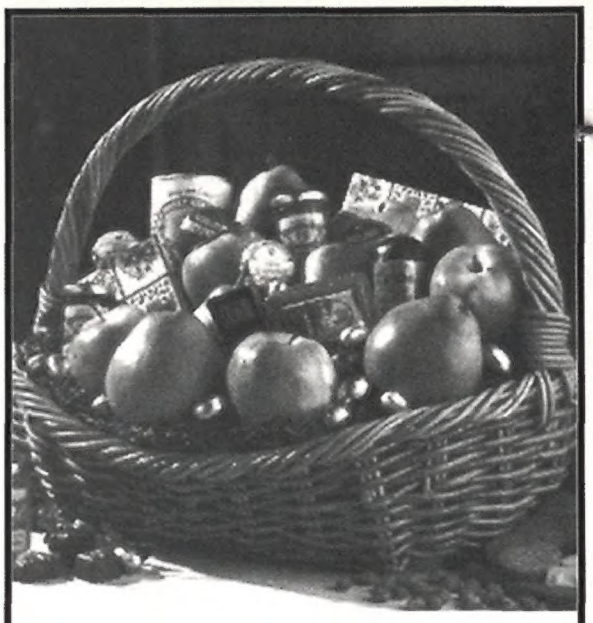

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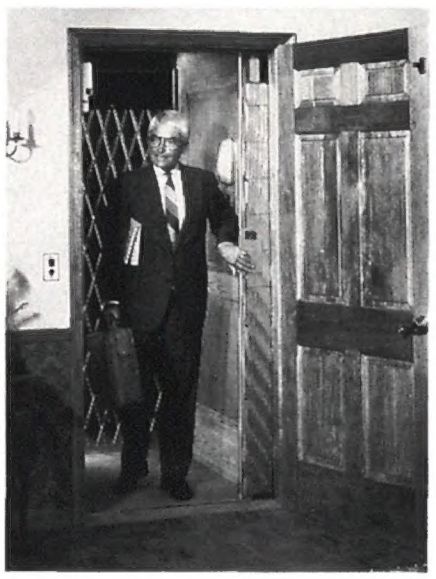

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Secretary Adams' comments

Smithsonian horizons

No longer dominating the world market for agriculture, we are facing new problems of living on a small planet

America has always been blessed with an immense, seemingly almost unlimited, agricultural potential. Its expanding frontier in the 19th century drew waves of immigrants into huge, lightly occupied regions of high fertility. Pioneering advances in farm machinery, a transportation revolution led by aggressively expanding railroad networks, the advent of inexpensive chemical fertilizers, ready acceptance of a flood of innovations stemming from land-grant colleges and experimental stations, hybrid seed–the story of success building upon success needs no lengthy recounting.

During and after World War II it was commonly said that we could feed the whole world, even as the proportion of our own population engaged in agriculture was falling (and has continued to fall) steadily.

Today the problems are different. Begin with our own national outlook. We continue to grapple with overproduction, but in a new setting complicated by our declining share of the world market. Total world grain production last year amounted to some 1.7 billion metric tons, an impressive increase of about 18 percent since 1981. But the *Wall Street Journal* writes darkly of pigeons roosting in silent Galveston grain-shipping silos, for this coincides with a decline of 24 percent in the volume of U.S. grain exports.

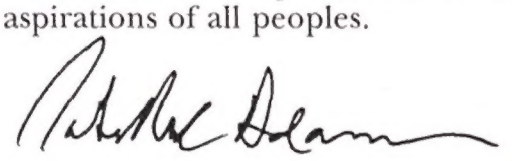
Contributing to the decline has been subsidized production, exemplified by the case of European soybeans recently highlighted in difficult negotiations over a new General Agreement on Tariffs and Trade (GATT). Even Saudi Arabia has become a substantial exporter of wheat–at subsidies on the order of six times world market prices. But new and formidably low-cost producers have also entered the competition, taking advantage of the same technological advances in seed, fertilizers and pesticides that the West has pioneered. Leaving farmland idle, our traditional response in order to maintain price levels, now merely means that U.S. production drifts lower and is replaced not only by that of the European Economic Community but by that of China, India and others.

There is another, more long-range, side of the coin that is no less troubling. Gains in world agricultural output have mainly been the result of bringing new lands into production. The transition from what agricultural economist Vernon W. Ruttan calls a resource-based to a science-based system began in a few countries like ours in the 19th century, but elsewhere it is occurring for the most part within a single century. As declining worldwide prices (when corrected for inflation) also attest, the results to date have been more than enough to match population increases. But for how much longer can that situation continue?

Here Ruttan offers convincing reasons for caution. Assume that population growth continues to be accompanied by a significant degree of economic development. The consequence will surely be that per capita consumption (especially in meat, demanding larger areas devoted to feed crops) will outpace even the doubling or more of human populations that is a reasonable certainty: "During the next several decades growth in food and feed demand arising from growth in population and income will run upwards of 4.0 percent per year in many countries. Many countries will experience more than a doubling of food demand before the end of the second decade of the 21st century."

Contrast this with the fact that our own annual rate of improvement for yields of corn is only about 1 percent. Fresh water is becoming an increasingly scarce resource, heavily in demand for growing cities and industries. With the most suitable lands already under irrigation, further expansion in irrigated areas will be increasingly contentious and costly. At the same time, the incremental responses to further increases in fertilizer is declining. Water pollution, with fertilizer runoff and topsoil erosion as major contributors, has become an important public concern. Not surprisingly, this problem is particularly acute in Europe, where high crop subsidies have led to fertilizer applications two to four times higher than in the United States.

Once again, we encounter the challenge of living on a small and increasingly crowded planet. The individual nation-state is more and more caught up in a web of interaction that ties its risks and prospects to complex processes outside its capacity to control and often even to monitor. For all our past abundance, the likelihood is that before long we will need to embrace two sets of possibilities in order to maintain any prospect of security and improved well-being for our children. The first is our extended participation and leadership, in order to augment the world's subsistence resources, in the promising but problematical and costly effort to implement new biotechnological discoveries. The second is a widened domain of responsibility for something beginning to approximate a framework of world governance–to take positive account of the potentials, needs and aspirations of all peoples.



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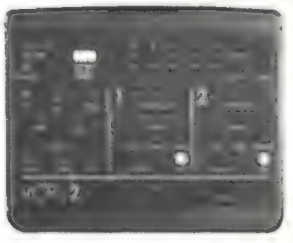

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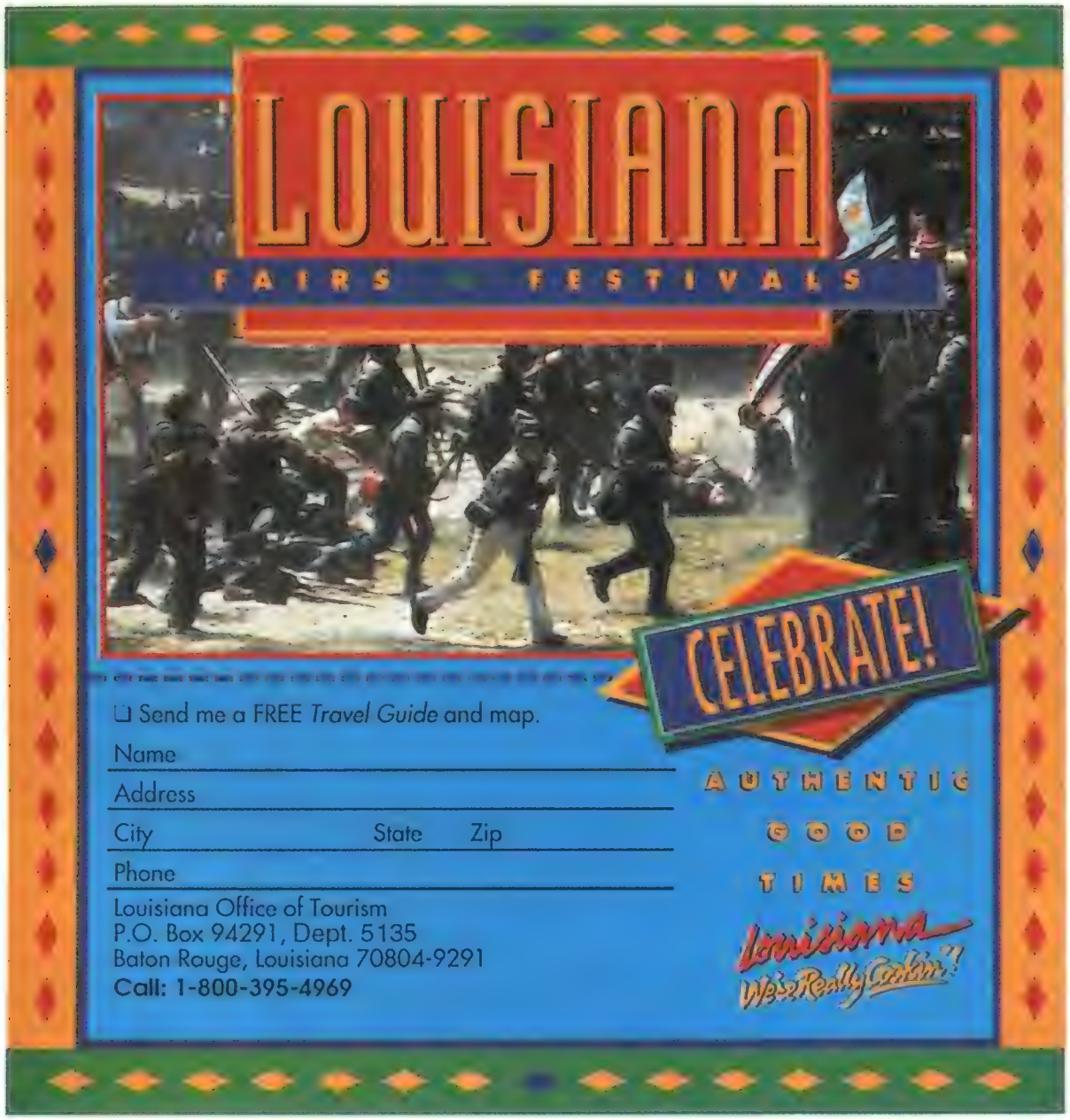

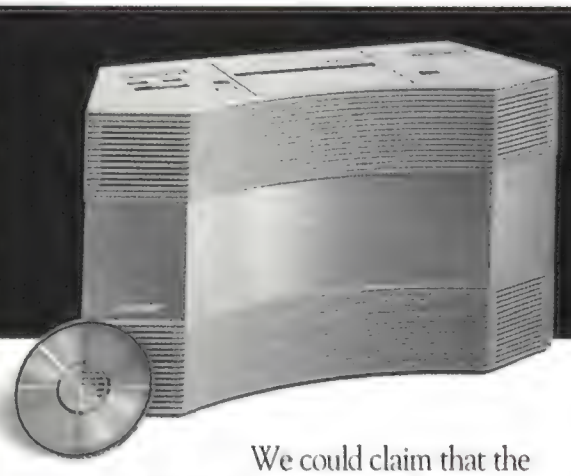

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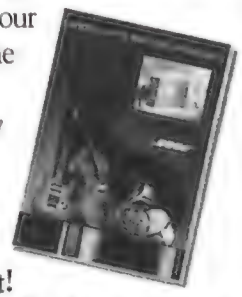

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Letters to the Editor

'Curator's choice at MOMA'

Dear Sir: I enjoyed working with you on "Curator's choice" for the January issue. The projected four-page spread of reproductions was meant to suggest the range as well as the quality of our acquisitions. Thus I was distressed when one page was dropped at the last minute, especially since the three omitted pictures were all contemporary works and all by women. I would be most grateful, as doubtless would your readers, if you would reproduce the pictures [opposite] with this letter.
Peter Galassi
Director
Department of Photography
The Museum of Modern Art
New York City

Dear Sir: When manipulation is done with a medium other than light, a photograph ceases to exist as a photograph. What photography is all about is: light. Once that rule is violated a photograph becomes something else. One should look to the photographic image for art-in-photography because that is where it will be found, with nothing added.

If an artist is dissatisfied with that, he should go to another art form for his expression and let photography capture the real image. Isn't that what Daguerre, if not Nièpce, had in mind? That is where photography's magic lies.
James Stayton
Eureka, California

Amber

Dear Sir: The great amber deposits in the Baltic area were known to the ancients. Herodotus reported, with some personal reservations, the account he

Cindy Sherman (American, born 1954), *Untitled Film Still #56*, 1980 (Gift of Jo Carole and Ronald Lauder in memory of Mrs. John D. Rockefeller III)

Jo Ann Callis (American, born 1940), *Woman Twirling*, 1985 (The Fellows of Photography Fund)

Sage Sohier (American, born 1954), *Gordon and Jim, with Gordon's Mother Margo, San Diego, California*, 1987 (The Family of Man Fund)

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had heard of a sea north of Europe from which area came amber. Could he have had knowledge of the amber deposits on the Baltic Coast? If so, amber may have been gathered near present-day Palmnicken for at least 2,500 years!

David Trumbull
Cambridge, Massachusetts

Dear Sir: The Amber Museum in Palanga, Lithuania, is the only one in the world dedicated solely to amber. It contains a rich collection of 25,000 items and is housed in the 15 halls of the former mansion of Count F. Tyszkiewicz.

A. K. Landsbergis
Upper Marlboro, Maryland

Dolphins

Dear Sir: Despite the bleak picture painted by David Riley in his article on dolphins, these fascinating creatures live rich and long lives in most aquariums and oceanariums. It can be shown that the average annual mortality rate of both aquarium and free-ranging dolphins is 7 percent. Riley mentions the sudden deaths of dolphins in the enclosed lagoons as if something mysterious were happening. The facts are that they succumbed after eating fish that found their way into the lagoon, and which carried saxitoxin, a neurotoxin responsible for paralytic shellfish poisoning in humans. That same poison killed 14 humpback whales in Cape Cod Bay.

William P. Braker, Director
John G. Shedd Aquarium
Chicago

Dear Sir: Even though my children's interest in nature has surely been heightened by seeing such animals as captive dolphins, I cannot in clear conscience condone their confinement.

However, those who are speaking out against their captivity must also consider equally objectionable the captivity of all other free-ranging wildlife. I have not seen attention paid to protests over the captivity of sharks or other mobile animals. Must our sympathy be directed only to those creatures that exhibit "intelligence" and other mammalian characteristics similar to ours?

I find that kids often point out these paradoxes. Those wishing to make a stand and set an example should be able to reasonably and compassionately answer such questions. Good luck!

Brad Johnson
Phoenix

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As America becomes more urban, most kids don't live near oceans or farms, or see animals besides dogs, cats and birds. The only wild animals they have a chance to observe firsthand and really learn about are in zoos, marine parks and aquariums.

Brad Andrews
Vice President
Zoological Operations
Sea World
Orlando

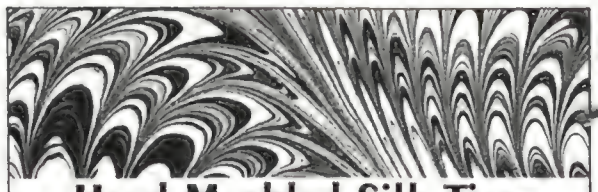
Dear Sir: I would like to express my displeasure at the use of politically correct newspeak in your article. The author mentions "autistic children and other differently-abled individuals" who benefit from swimming with dolphins.

The use of a euphemism such as "differently-abled" as a code word for "handicapped" or "retarded" not only does violence to the language, it also indicates inability to face adversity and cope with it emotionally. Eventually, "differently-abled" will come to mean more or less the same thing as the words it replaced, with the added burden of obvious dishonesty.

David Perlman
Rochester, New York

Haiti and the Marines

Dear Sir: The Marines in Haiti were often put in a situation where past training didn't help much. My father, Charles A. Johnson, was a potter before joining the Marines. In February 1916, with a wife and two little children, he was sent to Haiti to build roads. Having no experience in that area, he sent for books and studied Roman road building. I understand that my father's roads are still in use there.



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Ruth Johnson Ronnquist
York, Maine

Dear Sir: Although the Haitian revolution resulted in the first black republic in the Americas, there was a much earlier slave rebellion that began in the late 1600s in the Dutch colony of Surinam. West Africans, brought as slaves for the new colony's plantations, soon rebelled in large numbers. Fleeing to the jungles, they began an organized uprising against the Dutch that would last over 100 years. Real peace was not established until the late 1780s.

Michael K. Oppenheim
Randallstown, Maryland

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Joan D. Ensor
West Redding, Connecticut

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Irene Day
Terrebonne, Oregon

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the Colomb-Béchar to Colombey-les-Deux-Eglises, village or large city, was equipped with one or more pinball machines. Most were built or designed by David Gottlieb.

In those heady days of Sartre, Piaf, Camus and the sordid, savage war, it was always a pleasure to visit a local bistro. I often wondered how those machines had traveled from Chicago to some of the bizarre locales visited by the Legion.
Alec Forbes
Dublin, Ireland

Dear Sir: A coin-operated pinball game, "Whiffle," was invented by my dad, Earl W. Froom of Youngstown, Ohio, in 1930.

Like striking oil or discovering gold, it was a quick financial success in the depths of the Great Depression, and the demand for coin-operated games exploded. Literally hundreds of manufacturers entered the business in the first two years; Dad had 88 competitors in Youngstown alone.

Soon thugs and mobs entered the business, fighting for game locations and territories. The violence brought on local and state laws all over America, outlawing most pinball games.
Robert E. Froom
Youngstown

Dear Sir: As a family amusement entrepreneur, I assure you that the draconian ban on pinball still exists in New York City and most of the metropolitan area. This, in large part, accounts for the huge success of Broadway Arcade. Due to byzantine zoning regulations, it operates virtually the only games in town, other than at Coney Island (long recognized as a snake pit beyond redemption, thus deserving of pinball).

I have given up struggling to bring pinball back in a big way to New York City. My amusement centers will continue, in the very few localities willing to shrug off the sinister infamy with which pinball has been smeared, to accept the creation of jobs, tax revenues and innocent fun that these wonderfully entertaining games of skill provide.
Steven Lang
New York City

Dear Sir: In the 1950s we did any odd job that surfaced. Probably 50 percent of all our earnings went into pinball nickel slides.

The most-favored "bandits" came from Gottlieb. With competition as to who could run up the most free games, or replays, we found that the back glass was held in place by a strip of wood, secured by two screws. A screwdriver allowed the glass to be slid upward. With the free-game wheel accessible, many nickels were saved–until the owners made the back tamperproof by securing it with a wraparound metal strip and a padlock.
Graham N. Babb
Holladay, Utah

Dear Sir: I first saw a pinball machine in Culver City in the 1950s. As I recall, it had been confiscated by the police; my friend's father, a policeman, had brought it to their home. We felt very daring and bold, playing this illicit game.
Lillith
Ventura, California

'Call me Great or Wise...'

Dear Sir: Before Mr. Chiles becomes James the Wise he should know that descriptive surnames can be the ultimate mixed blessing. I became Brilliant by marriage. When introduced to strangers, I am greeted with a raised eyebrow, evolving into a look of incredulity culminating in an unoriginal, uninspired, anything-but-brilliant "Really?"

"Yes, I am. Thank you for asking."

The side effects of being Brilliant are not all negative. I am Brilliant at whatever I do. I have given birth to two Brilliant sons. Is that not better than spawning Wise guys? After all, wordplay is not Chiles' play.
Marilyn Brilliant
Charleston, South Carolina

Dear Sir: Some of my friends and family have begun to bestow medieval nicknames on their children, adopted from such colorful figures as Ethelred the Unready, Louis the Sluggard and Peter the Eater. My enthusiasm for Chiles' idea probably stems from lineage. I'm a descendant of Charles the Hammer, Pepin the Short, Charles the Great and Louis the Pious.
Ronald (the Regal) Pepin
Colchester, Connecticut

Dear Sir: My family genealogy traces a direct paternal line 31 generations to Viking King Harald I of Norway, "Harald Fairhair." His son, the last Viking king of Northumberland, was "Eirik Bloodax," a graphic moniker for an occupational proclivity.
Patricia Rice Brunner
Seattle

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Phenomena, comment and notes

This time the comet alarm was false, but Earth moves in heavy traffic: sooner or later our luck will run out

On television space operas, the velocity of the starships is simulated by bright objects whizzing past the viewing ports. Such scenes always make me tense because the ships appear to be going so fast that they could not possibly avoid a head-on collision, and when the collision does happen, the ship and the series will be no more.

Earth is a little like those fictional spaceships, plowing through the interplanetary medium at 65,000 miles per hour in its endless voyage around the sun. Space in these inner reaches of the Solar System is anything but empty; we are hurtling through a haze of debris ranging from dust to sand grains, pebbles and rocks, to boulders the size of a garage. It makes for a good show when these bits and pieces streak into our atmosphere, heated into incandescence by friction. Such sights are best especially after midnight, when the place where we stand has swung around to the "front" of our spaceship so we are looking in the same direction the planet is going. That is when we are most likely to see the *pfffft* of a tiny meteor and the occasional spectacle of a bolide–a fireball blazing aross the sky and breaking up.

These flashes in the starry night are pretty, and they present no great threat despite the occasional meteorite that reaches the surface, making the newspapers only if it punches a hole in somebody's car. But there are other objects out there, larger, deadlier. Some are asteroids, chunks of planetary material knocked out of the region between Mars and Jupiter, where most reside, so that their orbits now dip inside that of Earth. Some are iron and nickel, so metal-rich that, as astronomer Bill Hartmann reported in our September 1982 issue, futurists have thought about pushing one into Earth orbit so our mines would be in the sky instead of the ground. Large asteroids have plowed into Earth in the geologic past. Such an impact, possibly in Yucatán, is suspected to have caused the demise of the dinosaurs. True or not, catastrophic collisions have unquestionably occurred; in the September 1989 issue, physicist Jim Trefil presented the evidence for more than 120 events whose craters are still visible.

Smallish asteroids do pass close (by astronomical standards) to Earth with surprising frequency. Rather than UFOs, they are known as NEOs: near-Earth objects. From time to time a short item in the *New York Times* reports such a passage, often discovered only after the fact when the object is picked up on photographic plates. Last December NASA obtained radar images of an asteroid named Toutatis as it zipped by Earth at a distance of 2.2 million miles, about ten times the distance to the moon. Discovered four years ago by French astronomers and named for a Gallic god, the asteroid actually consists of two irregularly shaped, cratered objects, 1.6 and 2.5 miles in diameter, traveling in contact with each other (below).

Comets, too, pose a threat. (Some of the Earth-crossing "asteroids" may be

Last December twin asteroids, each two miles across, zipped by Earth.

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the dead cores of old comets, their volatile components long since lost in innumerable passages around the sun.) Comets disturbed by passing stars come looping in from the Oort Cloud, a halo of icy objects that may extend two light-years out from the sun, or from the postulated Kuiper Belt, less densely crowded bands of comets only 50 or 60 times the sun-Earth distance away. (In August 1992, astronomers at Mauna Kea in Hawaii imaged what may be the first body in the Kuiper Belt to be discovered. Known for the moment as "1992 QB_1", it is believed to be about 120 miles across and to have a very dark surface, typical of a comet nucleus.)

When a comet is captured by the gravitational pull of one of the giant planets, it becomes periodic, locked into a relatively short orbit and returning to the sun at regular intervals. Halley's is the best known. But no such orbit is stable. Another encounter with one of the large planets can change it. So can heating by the sun: a pocket of frozen gases on the surface of the comet will vaporize so rapidly that it becomes a jet, pushing the comet onto a new course.

A comet colliding with Earth is the stuff of science fiction–until it happens and our own series ends. Last fall came the sensational news that a periodic comet named Swift-Tuttle just might hit Earth on August 14, 2126. That sounds far away to those of us who have always lived in years that begin with "19." But at least a few individuals born just 30 years from now will live to see that day.

Until last year Swift-Tuttle was something of a mystery. When it was discovered in 1862 (and named for the first two people to report it), calculations indicated it would return about 1981. But there was no unequivocal sighting from the 18th century, and some of the positions used to calculate its orbit in 1862 were suspect. In fact the comet was not seen before, during or after 1981. Recognizing some observations from 1737 as possibly being of Swift-Tuttle, Brian Marsden of the Harvard-Smithsonian Center for Astrophysics suggested the comet might return in 1992. And indeed, on the 26th of last September, Japanese amateur astronomer Tsuruhiko Kiuchi found the missing comet in the constellation Ursa Major.

Comet Swift-Tuttle displayed a thin tail as it neared the sun in November.

There had been a sign it was coming. Strung out along its orbit, ahead of and behind the comet itself, is a stream of fine particles. When Earth passes through the comet's orbit every August, these particles result in a meteor shower known as the Perseids (the meteors appear to be streaking out of the constellation Perseus). In 1991 and again last year, the showers were unusually strong.

If the comet were to hit us in 2126 (or

any other time) the results would be horrendous. At this point in its orbit it is moving at 130,000 miles per hour. The core is estimated to be five miles across, about the size of the object invoked for the death of the dinosaurs. It is not clear that the human race would survive.

The thought that a comet or asteroid might someday threaten to come down from the sky is not new. Back in the 1960s a group of MIT students worked out ways to deflect or destroy an incoming asteroid. Since then we have discovered nearly 200 NEOs with diameters of 100 yards or more; the best guess is that there may be as many as 3,000 objects a half-mile or more across that could strike Earth. In an exquisitely timed review article in *Nature* last December, Thomas Ahrens and Alan Harris of CalTech discussed the results of a NASA workshop on near-Earth object detection and what our options are.

According to their best estimates, objects in the 10-yard range hit Earth almost annually, releasing energy equivalent to 10,000 tons of TNT as they break up in the air. (We watched one fly by about 100,000 miles away in 1991.) Those in the 100-yard class, such as the one that blew down trees for hundreds of miles in Siberia in 1908, strike every 300 years or so, resulting in a 10-million-ton explosion. Objects a half-mile to a mile in diameter are expected only every half-million years or so, but these are large enough to be catastrophic on a global scale, killing a quarter of the world's population.

The velocities and thus the orbits of small objects could be changed, the authors say, by hitting them with 500-pound projectiles. The material thrown off by the resultant cratering would act like rocket exhaust, pushing the object in the opposite direction. A larger object could be deflected, if there were years to do the job, with a "mass driver," or implanted propulsion system. Astronauts or robots would land on the asteroid and set up such a mechanism, hurling the material of the asteroid itself off into space and in the process nudging it in the opposite direction.

The tools of choice for larger asteroids, however, are nuclear explosives. These could be placed on the asteroid's surface or buried for greater efficiency; the tons of material ejected in one direction would move the object in the other. Most interesting is the idea of exploding a large neutron bomb at just the right distance above the surface, thus heating the surface so fast that a thin shell would spall off, again pushing the asteroid in the opposite direction.

Ahrens and Harris are not advocating a crash program. Further feasibility studies may be warranted, they conclude, but they do not recommend that any engineering design work begin. The risks are low, the costs high in relation to the risks, and defense technology is advancing too rapidly, they conclude.

In the meantime, the threat from Comet Swift-Tuttle has receded. Reanalysis of past sitings enabled astronomers to calculate more accurately its orbit, and it appears now that we are 100 percent safe on that August day in 2126. The Perseid meteor shower that year, on the other hand, could be one of the great sky shows of all time. There's not much time to relax, though; the new calculations show that Swift-Tuttle will be a definite threat in 3044.
John P. Wiley jr.

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The object at hand

Some otherwise respectable women picketed the White House for suffrage back in 1917—and became jailbirds

From five or six feet away, it looks like a simple piece of silver latticework. But this small, rectangular pin is actually a prison cell door in miniature–bound by a delicate chain and a tiny, heart-shaped lock. It is the "Jailed for Freedom" pin, which hangs today in the National Museum of American History. This pin and others like it were once worn as badges of courage by members of one of the most exclusive women's clubs ever.

There were only about a hundred members–women who went to jail in 1917 for picketing the White House to get the right to vote. These days, public demonstrations by women are commonplace. But 76 years ago, when a militant group struggling for suffrage appeared almost daily outside 1600 Pennsylvania Avenue, Americans were shocked by such a display from otherwise respectable women.

The Jailed for Freedom pin in the NMAH exhibit "From Parlor to Politics: Women and Reform in America, 1890-1925" was awarded to Amelia Himes Walker, an upstanding member of society and mother of three from Baltimore. She was arrested in 1917 on July 14–Bastille Day–while holding a banner bearing the words, "Liberty, Equality and Fraternity." Walker and 15 other women were taken into custody as one after another they approached the White House gates. The charge was "obstructing traffic."

Rather than pay a fine of $25 (considered an admission of guilt), they accepted a sentence of 60 days in a Vir-

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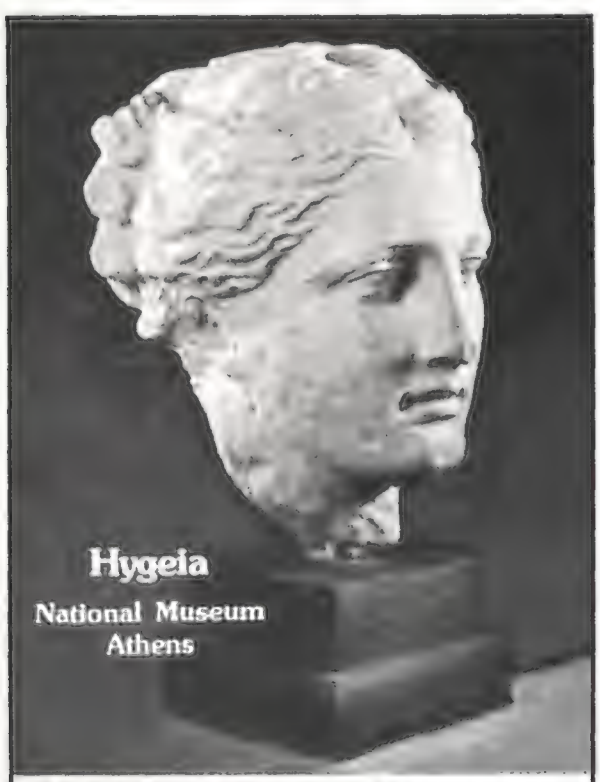

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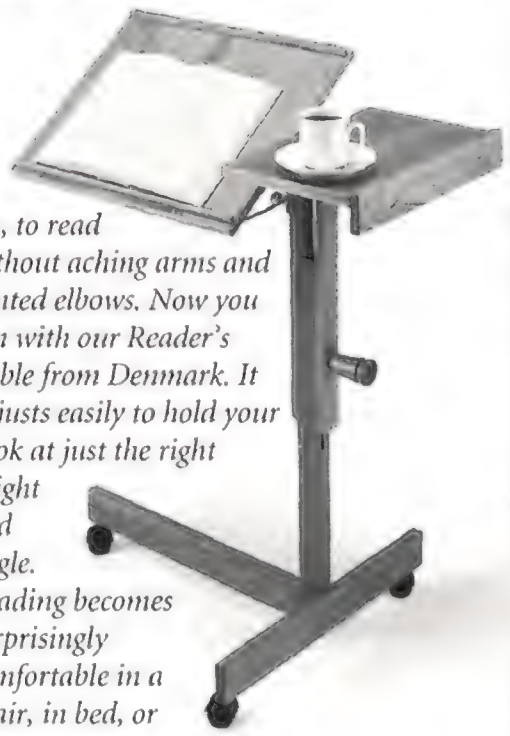

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ginia workhouse. Walker's group served only three days. But the women's struggle to get the vote by picketing the President was a much longer process. It began in early January 1917. In April, the United States entered World War I and was trying to mobilize the nation. As the year progressed and the picketing continued, the courts became less lenient. By fall, pickets were being given six and seven months. Victim of one of the longest sentences and the harshest treatment in jail was Alice Paul, who had organized the picketing. (In 1923 she would draft the first version of the controversial Equal Rights Amendment, which 70 years later is still unratified.)

Paul had come to Washington in 1912 to take charge of the National American Woman Suffrage Association's slumbering Congressional Committee. She turned the committee–which would become the National Woman's Party–into an effective lobbying machine, raising funds all over the country. From the moment Woodrow Wilson, a Democrat, took office as President in 1913, she badgered him to use his influence with Congress to push a constitutional amendment guaranteeing women the right to vote. Wilson waffled. He came out for suffrage in time for the 1916 election, but only as something for individual states to decide. When, on January 9, 1917, a large NWP deputation met with Wilson (just re-elected on the slogan "He kept us out of war"), he was once again dismissive.

The next morning the White House picketing began.

The press described the pickets as "Silent Sentinels." Nearly every day, rain or shine, whenever Congress was in session, they were there. They stood essentially motionless, holding large purple, white and gold banners. "How long must women wait?" some banners asked. "President Wilson, what will you do for woman suffrage?"

There were many–including some suffragists–who considered the demonstrations unseemly, and who chastised the pickets for making a spectacle of themselves. But earlier, while Alice Paul was studying in England, she had joined up

For their pains, imprisoned protesters won silver "Jailed for Freedom" pins.

Do you ever get motion sickness? You know that queasy, nauseous, dizzy feeling?

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with Emmeline Pankhurst and her militant "suffragettes." As a Quaker pacifist, Paul did not take part in the more violent methods the Englishwomen used (burning buildings, throwing themselves in front of horses), but she learned the value of keeping an issue in the public eye. A spectacle was what was needed.

Paul alleviated the monotony for press and pickets alike by organizing theme days and special events. There were days for female college students, teachers, workers and professionals. On Lincoln's Birthday, the banners read: "After the Civil War, women...were told to wait–this was the Negro's hour. In 1917, American women still ask for freedom."

For the most part, the pickets–and suffragists in general–were white, middle or upper class, and well educated. (Some suffragists, it should be noted, did *not* favor votes for black women. In fact, a few pickets felt that among the greatest hardships of doing time was sharing quarters with "negresses.") But the cause drew women from all walks of life. There were young women and old, women who left jobs to come to Washington, and others who left husbands in charge of households and children. (Katharine Houghton Hepburn of Connecticut–mother of the famous actress, and a NWP officer–sent recruits down to Paul in Washington with the recommendation "She's a corker!")

For some months things were fairly peaceful. Tourists shouted words of encouragement and even joined the picket line. Street workers built supports for the big banners. One cold winter day, President Wilson had his staff invite the pickets in for coffee. (They declined.)

But after the United States got busy with the war, the atmosphere changed. In a show of loyalty, most suffrage groups relaxed their lobbying efforts. Paul, however, would have none of that. Since Wilson had officially led the country into a war "to make the world safe for democracy," she saw that the argument for universal suffrage in the United States had gained new force. The pickets' banners now cast back at the President his own resounding words: "We shall fight for the things we have always carried nearest our hearts...for the right of those who submit to authority to have a voice in their government."

Foreign and domestic dignitaries who visited the White House often ran an embarrassing gauntlet of banners. In late June, for the benefit of a Russian delegation, the pickets held a banner accusing the Wilson Administration of hypocrisy for claiming that the United States was really a democracy. An enraged crowd ripped the banner down. The next day, after a similar scuffle, the chief of police warned Paul that arrests would follow if picketing continued. Soon, two women were arrested.

All summer, attacks on the pickets escalated. On August 14, major riots started. In the midst of fervent anti-German feeling, the pickets' banners addressed the President as "Kaiser Wilson." A crowd of men–many in uniform–ripped the banners from the pickets' hands, dragging some women across the sidewalk. The crowd followed the fleeing pickets to their headquarters across

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Patients should be warned against driving a motor vehicle or operating dangerous machinery. A patient brochure is available

Drug Interactions. Scopolamine should be used with care in patients taking drugs, including alcohol, capable of causing CNS effects. Special attention should be given to drugs having anticholinergic properties, e.g., belladonna alkaloids, antihistamines (including meclizine), and antidepressants

Carcinogenesis, Mutagenesis, Impairment of Fertility. No long-term studies in animals have been performed to evaluate carcinogenic potential. Fertility studies were performed in female rats and revealed no evidence of impaired fertility or harm to the fetus due to scopolamine hydrobromide administered by daily subcutaneous injection. In the highest dose group (plasma level approximately 500 times the level achieved in humans using a transdermal system), reduced maternal body weights were observed

Pregnancy Category C. Teratogenic studies were performed in pregnant rats and rabbits with scopolamine hydrobromide administered by daily intravenous injection. No adverse effects were recorded in the rats. In the rabbits, the highest dose (plasma level approximately 100 times the level achieved in humans using a transdermal system) of drug administered had a marginal embryotoxic effect. Transderm Scōp should be used during pregnancy only if the anticipated benefit justifies the potential risk to the fetus

Nursing Mothers. It is not known whether scopolamine is excreted in human milk. Because many drugs are excreted in human milk, caution should be exercised when Transderm Scōp is administered to a nursing woman

Pediatric Use. Children are particularly susceptible to the side effects of belladonna alkaloids. Transderm Scōp should not be used in children because it is not known whether this system will release an amount of scopolamine that could produce serious adverse effects in children

ADVERSE REACTIONS
The most frequent adverse reaction to Transderm Scōp is dryness of the mouth. This occurs in about two thirds of the people. A less frequent adverse reaction is drowsiness, which occurs in less than one sixth of the people. Transient impairment of eye accommodation, including blurred vision and dilation of the pupils, is also observed.

The following adverse reactions have also been reported on infrequent occasions during the use of Transderm Scōp: disorientation, memory disturbances; dizziness; restlessness; hallucinations; confusion; difficulty urinating; rashes and erythema; acute narrow-angle glaucoma; and dry itchy, or red eyes

Drug Withdrawal: Symptoms including dizziness, nausea, vomiting, headache and disturbances of equilibrium have been reported in a few patients following discontinuation of the use of the Transderm Scōp system. These symptoms have occurred most often in patients who have used the systems for more than three days

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Lafayette Square and stormed the building. A sailor punched a woman in the face. A shot was fired into the building. Far from protecting the women, two days later the police were leading the attacks. The only men arrested were those who tried to help the pickets. Meanwhile, the arrested women faced increasingly stiff sentences.

The cells at the workhouse in Occoquan, Virginia, were small, dark and rat-infested. Bedding hadn't been cleaned in almost a year; the staff handled it only with rubber gloves. The suffragists held contests to see who had the most mealworms in her food.

For extended periods the women were allowed no visitors–or legal counsel. All mail was censored. Refused basic privileges, the suffragists demanded to be given a different status, as political prisoners. When this request was denied in late October, some of the women resorted to a hunger strike. Their jailers were left with two unpleasant choices: let the women starve or force-feed them. As authorities had done with suffragettes in England, they chose the latter.

Rose Winslow, a Polish immigrant, managed to get short, scribbled messages smuggled out to her husband. "Yesterday was a bad day for me in feeding," she wrote in one. "I was vomiting continually." Paul was also being force-fed. Hoping to discredit her by having her diagnosed as mentally ill, the warden moved her to the psychopathic ward, where the screams of patients and a flashlight shined in her face every hour kept her awake.

On November 14, 1917, a group of newly convicted pickets at Occoquan was set upon by male guards. Dorothy Day, 20, the future founder of the Catholic Worker Movement, had her arms twisted and was violently thrown against an iron bench. Dora Lewis, 55, was knocked unconscious. Lucy Burns, identified as a Woman's Party leader, was beaten and left handcuffed to her cell bars with her hands above her head.

The NWP kept in touch with the prisoners as best it could, posting runners outside the prison windows to carry messages called out to them. It issued press releases and sent ex-prisoners across the country on a "Prison Special" train to publicize the treatment of the jailed suffragists. News of the latest action by the Occoquan guards spread, stirring a strong public response. The White House found itself flooded with

The indignities of arrest were part of a new strategy of militant defiance.

protest letters. Shortly afterward, Wilson agreed to the release of all prisoners.

In early January 1918–exactly one year after the picketing began–Wilson also helped push the woman suffrage amendment through the House. Getting it passed by the Senate was harder–but by August 26, 1920, it had cleared both houses of Congress and been ratified by the states, becoming the 19th Amendment to the U.S. Constitution.

Demonstrations and arrests continued into 1919 (though jail sentences never again exceeded 15 days). But as 1917 ended, those who had already gone to prison had a taste of the victory to come. On Sunday, December 9, 1917, the Belasco Theatre in Washington, D.C. overflowed with more than 4,000 NWP supporters.Those who'd served prison sentences that year came forward one by one to receive their commemorative Jailed for Freedom pins. Among them was Amelia Himes Walker. Afterward, many of her Baltimore friends treated her coldly–not for picketing but because she had actually gone to jail. When the D.C. government finally admitted that the suffragists had been illegally incarcerated, she wrote to a fellow picket of the thrill she felt "at being forever removed from the criminal class."

Walker later became president of the NWP. She was always impatient with the "pink tea" moderate criticism of militants for "making yourselves obnoxious to men." Such insistence on being polite, she wrote, would have "won the vote along about the year 2000." Fifteen years before her death at age 93, Walker gave her pin to the Smithsonian.
Minna Morse

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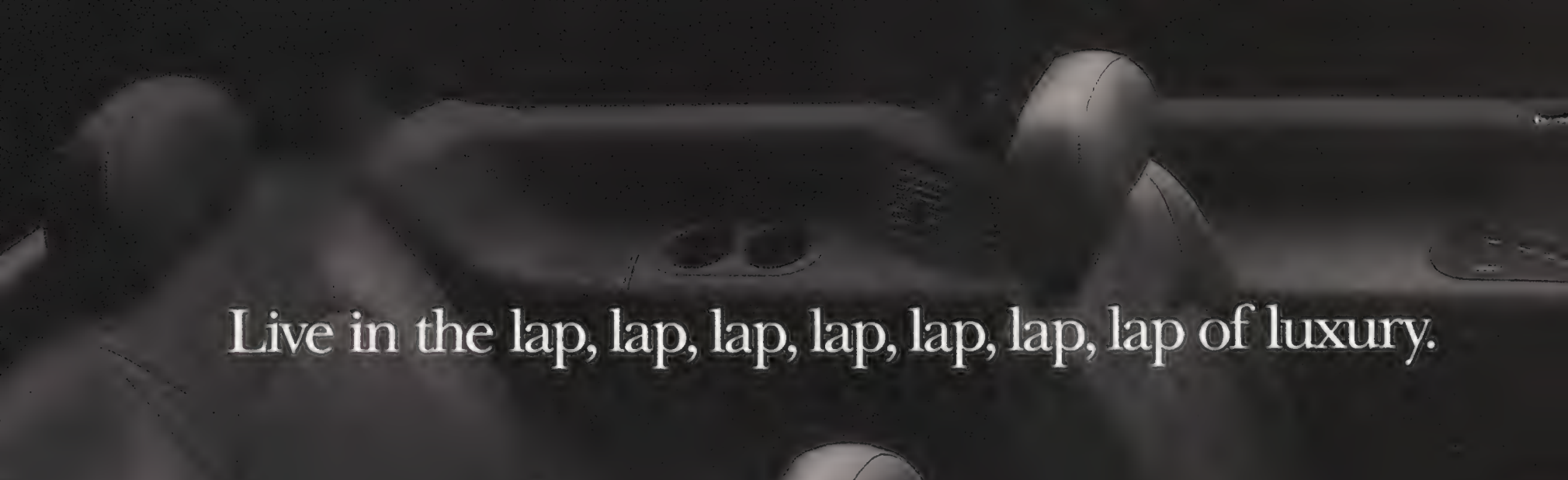

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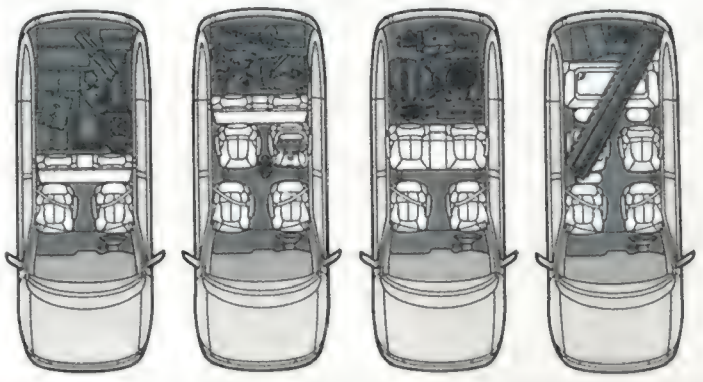

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Smithsonian highlights

Planning a Smithsonian visit?

Receive a special free Associates' Planning Packet. Write Smithsonian Information, Smithsonian Institution, Washington, D.C. 20560, or call (202) 357-2700; hearing-impaired service, TTY: (202) 357-1729. *Note:* Parking near Smithsonian museums is limited. Members are encouraged to use the convenient Metrorail subway system, with parking available at some stations (details in packet).

Begin your visit at the Smithsonian Information Center's Associates' Reception desk–open from 9 A.M. to 4 P.M. daily–in the Castle. The Court dining room, located in the National Museum of Natural History, is open daily, 11 A.M. to 3 P.M.

Freer Gallery to reopen
The Freer Gallery of Art is scheduled to reopen May 9, 1993.

Women's History Month
During March the Smithsonian will celebrate Women's History Month with a variety of programs and activities. For information call (202) 357-2700, 9 A.M. to 4 P.M., Monday through Saturday. For 24-hour recording, call (202) 357-4574, beginning March 1.

Smithsonian Kite Festival

Kite makers and watchers from all over the world will converge on the grounds of the Washington Monument on Saturday, March 27, for the Smithsonian's 27th annual Kite Festival, cosponsored by the Smithsonian Resident Associate Program and the National Air and Space Museum (rain date Sunday, March 28). This year's festival is held as a memorial to its remarkable founder, aviation pioneer and Smithsonian historian emeritus Paul E. Garber, who died last September at age 93. For information, call: (202) 357-3030.

Smithsonian Craft Show

The 11th annual Smithsonian Craft Show, sponsored by the Women's Committee of the Smithsonian Associates, will be held April 15-18 in the Andrew W. Mellon Auditorium, 1301 Constitution Avenue, N.W., across from the National Museum of American History. One hundred artists will exhibit and sell work in a variety of media. There will be an admission charge. A special exhibition of crafts by prizewinning artists from previous shows will mark Congressional endorsement of 1993 as the Year of American Craft. Call (202) 357-2700.

In conjunction with the Craft Show, the James Renwick Alliance will offer its annual spring forum April 17-18. For details, call Shelley Gollust, (301)229-2148.

Musical Weekend

This year's Smithsonian Musical Weekend, April 30-May 2, marks the 21st anniversary of the Friends of Music at the Smithsonian. Highlights include a National Symphony Orchestra concert at the Kennedy Center, conducted by Yuri Temirkanov; a performance by the Smithsonian Chamber Players; dinners at the Renwick Gallery and the National Air and Space Museum; tea and music at the Moroccan Embassy; and breakfast at the National Zoo. For further information write: Musical Weekend, Box 11271, Washington, D.C. 20008.

Special March exhibits, events

Hirshhorn Museum & Sculpture Garden
Susan Rothenberg: Paintings and Drawings (through May 9) Retrospective exhibition of the work of the American artist, a leader in the revival of figurative painting. See *Highlights continued*, page 40.
Directions–Jac Leirner (through March 14) Sculptures by the Brazilian artist raise compelling questions about contemporary value systems.

National Museum of American Art
American Impressions: Masterworks from American Art Forum Collections, 1875-1935 (March 27-July 5) Masterpieces of American art by such painters as Albert Bierstadt, Childe Hassam, Robert Henri, Georgia O'Keeffe, Edward Hopper.
Paul Cadmus (through August) Installation of ten works features the artist's controversial 1934 painting *The Fleet's In!*, a satiric portrayal of carousing sailors on shore leave.

Renwick Gallery
Drawings by Craft Artists (through March 21) Drawing offers alternative avenue of expression for six established artists.

National Portrait Gallery
The Family 1976: Richard Avedon's Portraits for Rolling Stone (through June 6) Portraits by the famed photographer capture America's most powerful figures in the Bicentennial year–Jimmy Carter, Gerald Ford, Hubert Humphrey.
The Telling Image: Photographs from the Archives of American Art (through June 6) Exhibition features selected portraits of artists and photographers, from 1850 to 1970, including self-portraits by Ansel Adams and Charles Sheeler.

Arthur M. Sackler Gallery
Joined Colors: Decoration and Meaning in Chinese Porcelain (through November 28) Exhibit of 15th- through 19th-century polychrome porcelains, with overglaze enamel decoration, focuses on their significance as bearers of auspicious images and emblematic colors.
19th-Century Photographs from Sri Lanka (through March 21) Images by British photographers W.L.H. Skeen and Charles T. Scowen were taken when island was the British colony of Ceylon.
The Golden Age of Sculpture from Sri Lanka (through September 26) Exhibition of 52 ancient masterpieces of bronze casting includes many of the major monuments of Sri Lankan art.

National Museum of African Art
Elmina: Art and Trade on the West African Coast (through May 2) Exhibit explores the early encounter between Africa and Europe by focusing on Elmina, a trading post established in 1480 by the Portuguese on Africa's Gold Coast, now Ghana.
Images of Power and Identity Permanent exhibition showcases 100 masterworks from the collection.

National Museum of Natural History
Saynday was coming along...Silverhorn's Drawings of the Kiowa Trickster (March 5-May 31) Drawings by the 19th-century American Indian artist illustrate the adventures of Saynday, the Kiowa Trickster.
Seeds of Change (through May 23) Quincentenary exhibit examines the changes

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brought about by the exchange, begun 500 years ago, of five "seeds"–sugar, corn, the potato, the horse and disease–between the Old World and the New.
The American Wildlife Image and Charles Fracé (through May 2) Paintings by the noted American artist capture animals in their natural habitats.
Life in the Ancient Seas Permanent exhibition features a simulation of a 230-million-year-old reef.

National Zoological Park
Amazonia New permanent installation recreates a microcosm of the world's largest rain forest and river habitat. Exhibit explores the wonders of this richly diverse, threatened ecosystem.

National Museum of American History
Science in the Age of Columbus (through March 26) Exhibition of books and maps from the collections of the Smithsonian Institution Libraries.
Hidden Americans: Photographs of Gypsies by Carlos de Wendler-Funaro (through March 28) Collection of images from the museum's Archives Center documents lifestyles, culture, of gypsies in the United States, from 1920s to '40s.
Personal Legacy: The Healing of a Nation (through June 7) Exhibit commemorating the tenth anniversary of the Vietnam Veterans Memorial examines some of the objects and documents left at the Wall.
First Ladies: Political Role and Public Image Permanent installation.

National Air and Space Museum
Where Next, Columbus? New gallery looks ahead to the next 500 years of exploration, examining the scientific, technological, economic, ethical and political issues that future space travel will involve.
Air Power in World War II: Republic P-47 Thunderbolt (through May 31) Exhibit features multirole fighter called "the Jug."
Legend, Memory and the Great War in the Air Permanent installation looks at the reality of aviation in World War I.
Fires of Kuwait (6:45 P.M. on selected evenings) New Imax film focuses on the efforts undertaken to extinguish the oil-well fires in Kuwait.

Anacostia Museum
Body and Soul: The Alvin Ailey American Dance Theater (March 28-June 13) Exhibit celebrating the 35th anniversary of famed modern dance company features costumes, posters, programs, and original costume, prop and makeup designs by Romare Bearden, Randy Barcelo and Luis Johnson.

Frida Kahlo by Emmy Lou Packard is in "The Telling Image" at Portrait Gallery.

Cooper-Hewitt Museum (New York)
Revolution, Life, and Labor: Soviet Porcelains, 1918-1985 (through April 4) Exhibit showcases the recently acquired collection of porcelains assembled by Ludmilla and Henry Shapiro during their 40 years in Moscow.
From Background to Foreground: Looking at an 18th-Century Wallpaper (through April 6) Exhibition examines the historic and the social context of a wallpaper's design and manufacture.

Exhibition catalogs

Catalogs available currently include:
Susan Rothenberg: Paintings and Drawings ($30/$21.95 paper)
Seeds of Change ($39.95/$24.95 paper)
To order, send check or money order to Smithsonian Museum Shops, 8308 Cinder Bed Road, Newington, Virginia 22122. Include 15 percent of purchase to cover postage, handling (minimum, $1.75).

Office of Elementary and Secondary Education

The Office of Elementary and Secondary Education (OESE) offers a variety of programs, publications and services for teachers of prekindergarten through grade 12 nationwide. OESE also provides information about educational materials and programs that are available to schools and teachers from the Smithsonian's museums and the National Zoo. For information, write: OESE, Smithsonian Institution, Arts & Industries Building, Room 1163, MRC 402, Washington, D.C. 20560.

Smithsonian on the air

Smithsonian Presents Invention Series of half-hour television programs explores the spirit of innovation behind everyday and extraordinary inventions. Tuesdays at 9 P.M., EST, on the Discovery Channel. Check local cable listings.
Dialogue A weekly public radio series on national and international affairs featuring conversations with renowned scholars, authors and political figures hosted by international affairs specialist George Liston Seay. Produced by the Woodrow Wilson International Center for Scholars and Radio Smithsonian. Check local listings.

Resident Associate Program

To become a Resident Associate, or for fee and ticket information, call (202) 357-3030. March events include:
Jon Hendricks (March 5; 7:30 P.M.) Concert by the "poet laureate of jazz."
The Devil at Large: Erica Jong on Henry Miller (March 23; 6 P.M.) Author Jong discusses her new book, part biography, part memoir, on Henry Miller.
The Bigger the Better: King Kong *Celebrates His 60th Birthday on the Big Screen* (March 6; 8:15 P.M.) The 1933 film classic.
Tom Rush (March 26; 7:30 P.M.) Concert by famed "senior statesman" of folk music.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some March exhibits:
• Auburn, New York (March 13-April 25) *A Day in the Warsaw Ghetto: A Birthday Trip in Hell*, Schweinfurth Art Center.
• Denver, Colorado (March 19-May 30) *Songs of My People*, Denver Museum of Natural History.
• Oklahoma City, Oklahoma (March 22-April 16) *Seeds of Change* (panel exhibition based on the NMNH show), Metropolitan Library System of Oklahoma.
• Pittsburgh, Pennsylvania (March 20-April 19) *Seeds of Change*, Carnegie Library of Pittsburgh.

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The figuration of Susan Rothenberg

In 1973 artist Susan Rothenberg spontaneously doodled a rough horse on a small piece of unstretched canvas, creating an image that has haunted her work for almost 20 years. Now the acclaimed contemporary artist is the subject of a major retrospective organized by Michael Auping of Buffalo's Albright-Knox Art Gallery. "Susan Rothenberg: Paintings and Drawings," at the Hirshhorn Museum and Sculpture Garden through May 9, will also travel to Saint Louis, Chicago and Seattle.

"Susan Rothenberg's art embraces images, themes and symbols that are as provocative as they are significant to recent art history," asserts Auping. "Her powerfully simple depictions of horses created between 1974 and 1979 constitute an imposing contribution to the revival of figurative imagery."

A native of Buffalo, Rothenberg studied art at Cornell University before moving to New York City in 1969, at the height of Minimalism's sway. She established her direction and reputation as a painter by combining recognizable imagery and symbolic content with the austere, flat forms of Minimalist Art. This unique meld of abstraction and figuration became known as New Image painting.

The bold horse images now hang alongside an assortment of desert-hued animal forms and parts, ghostlike portraits and contorted, pretzel-like figures. Together they form what Auping calls "one of the most fascinating bodies of representational imagery to emerge in many years."
Diane M. Bolz

Hallmark of Rothenberg's early work was strong, spare image of horse. Three-foot-tall *Untitled* is from 1979.

Mondrian Dancing (1984-85) had genesis in Rothenberg's imaginary painterly dialogue with the Dutch artist.

Galloping horse seems to hang suspended in the 7-foot-wide pictorial space of *Cabin Fever*, from 1976. Rothenberg's horse images, states Auping, signify humanness.

In *Pontiac*, from 1979, a disembodied bone fragment "attacks" the image of a horse by barring the forward motion of the charging equine. Device diverts viewer's eye to surface.

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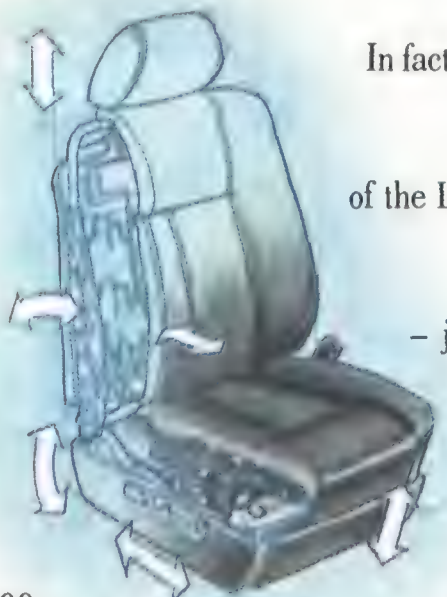

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By Edwin Kiester jr.

'Germany prepares kids for good jobs; we were preparing ours for Wendy's'

In the United States, the lack of skilled workers and the fear of competition launch a promising new apprenticeship program

They stand side by side at the whirring vertical saw, a lanky 17-year-old listening closely to the words of the shorter, older man in a workman's smock. Gale Buck, the tool and die shop supervisor at Grumman Long Life Vehicles near Williamsport, Pennsylvania, extends a forefinger to show how a piece of heavy-gauge steel should be angle-cut. Behind the two, the clangorous assembly line, where Grumman turns out trucks for the U.S. Postal Service, grinds along, producing a boxy, red-white-and-blue vehicle every six minutes.

"Don't cut the metal toward you," Buck is saying to Jayson Parent, trying to make himself heard over the din. "Have I told you that before?"

Jayson smiles. "Only about a hundred times."

Buck smiles back and claps the boy on the shoulder. "And I'll probably tell you 500 times more. Go ahead." Adjusting his protective goggles, Jayson steps up to the saw, the aspiring student eager to show off his skills.

Once upon a time, scenes like this were common—an older man carefully explaining techniques and passing on the tricks of a demanding trade to a younger, up-and-coming protégé. In the days of the young weaver Christopher Columbus and the precocious 12-year-old printer's devil Benjamin Franklin, apprenticeship was the accepted, formalized way for ambitious teenagers to scramble up the occupational ladder. Indeed, the tradition stretches back through history and across society. Rules setting out the terms of apprenticeship were included in the Code of Hammurabi, which governed ancient Babylon 4,000 years ago.

As *The Autobiography of Benjamin Franklin* describes in detail, apprenticeships in trades from printing to blacksmithing and tailoring were a fixture in Colonial America. Then came the Industrial Revolution. Manufacturing adopted an assembly-line process. Tasks were divided and subdivided and subdivided again into tiny, repetitious routines or reduced to machine watching, requiring no particular hierarchy of skills. Except for certain construction trades, apprenticeship was largely relegated to a historical footnote. In the United States in 1989, only 263,000 workers out of a blue-collar force of 35 million were registered apprentices. Their average age was in the mid-20s.

As college—any kind of liberal arts diploma—came to be seen as the only ticket to success, the country backed away from apprenticeship. In high schools, so-called shop courses evolved into a dumping ground for students who couldn't cope with (or had little interest in) education aimed at college. The idea that schools

Watched by a supervisor and a mentor, apprentice metalworker Jayson Parent runs a band saw at the Grumman plant near Williamsport, Pennsylvania.

Photographs by Enrico Ferorelli

should prepare students to fill a niche in an industrialized society was regarded as elitist and un-American.

But today, partly because of the shortage of skilled workers and the need to revive American industry, partly because of the failure of American secondary school education, apprenticeship and work-based learning are a hot-button issue. An apprenticeship program combining education and work to train thinking workers for tomorrow is now seen as one means for the United States to regain its position in the increasingly competitive world economy. This subject was very much on the agenda of President Bill Clinton's pre-Inaugural economic conference in Little Rock. "The world will not long pay American line workers ten times as much to work half as hard as the competition in the Pacific Basin," says Marc Tucker of the National Center on Education and the Economy. "The choice we have is to become a nation of high skills or low wages."

Williamsport, a manufacturing-based city of 35,000 in north-central Pennsylvania, has been putting this idea to the test. In a pilot project in the metal trades being closely watched across the country, Jayson Parent and 11 other teenage "youth apprentices" have been the pioneers. The Pennsylvania Youth Apprenticeship Program (PYAP) was so successful in its first year that it is being expanded to other occupations and other localities across the state.

On a particular Tuesday morning during the second semester of the four-year program, Jayson Parent got up at dawn, forked his legs into battered jeans and headed to the Grumman plant. Mondays, Tuesdays and Fridays he and the other apprentices must punch in at 8 A.M. The other two days are for high school. On factory days apprentices become full-fledged employees in every sense of the word. Jayson is assigned regular duties, has his work constantly evaluated and works until 4 P.M. The company can fire him in an instant if he fails to measure up. And, true mark of any employee, Jayson draws a weekly paycheck—$80 minus deductions. "Enough," he says, "to pay for gas and car insurance."

Work at a vertical saw was Jayson's first assignment of the day. After instruction, Gale Buck turned him over to a mentor, Mark Kaufman. At Grumman, Buck explains, preventive maintenance on manufacturing machinery is performed in-house rather than contracted out, so the busy tool and die shop with its humming galaxy of saws, lathes, milling machines and cutters provides an ideal training ground.

One of Jayson's tasks the day I visited was to design and make a bracket to hold a repetition counter on a stamping machine. With Kaufman looking on, Jayson inspected the machine, then drew a sketch showing how he planned to install the bracket. Using a high-torque hand drill ("because you can't move the machine, you have to take the drill to it"), he carefully drilled the bolt holes, remembering to drill slowly so the drill wouldn't jump and to watch out for overheating that would deform the metal. Then he cut the bracket itself with a horizontal saw, shaped it with a vertical saw, finished it off and bolted it into place.

Jayson is the kind of kid who used to take apart alarm clocks and lawn mower motors. "Sometimes," his stepfather, Tom Henninger, says, "he put them back together." In junior high, he signed up for a course in metal shop, and loved it. "I never cared for wood," Jayson says. "I didn't like all that sanding and gluing. But working with metal was a challenge."

At Montgomery Area High, however, Jayson soon had what metal shop courses there were "quite covered" and was beginning to teach other students, simply out of boredom. His junior high A's and B's began to slip. "He started seeing school as irrelevant," Henninger says. "He went because he had to go and was bored stiff." When the PYAP program was announced, Jayson jumped at it.

PYAP officials are careful to point out that youth apprenticeship is neither a wastebasket for slow learners nor a dropout-prevention program. The program targets mainstream kids like Jayson. Applicants are interviewed and chosen by potential employers, who have the last word. They must be at least 16 years old, with a C average or better and—very important—good grades in math and science. They may or may not eventually aspire to four years of college, but they must be interested in working with their hands. For the 1991-92 school year, 24 students from six Lycoming County

Apprentice Chris Barto (center, stripes) welds a joint on burner box at the Tampella Power Corporation. In the foreground is personnel manager Jack Burkhart.

high schools applied; 12 were chosen for slots in six large and small metalworking firms.

Boys from farms and small towns, smart and practical but accustomed to working with their hands, jumped at the chance to learn outside the rigid classroom curriculum. Chris Barto, for instance, was enrolled in a college preparatory program and had already completed an honors course in biology. He still hopes to attend college after completing the apprenticeship program. "But I really wanted something besides what was just in books," he says. Brian Sheets, a sprinter on the track team and a wide receiver in football, made "85s and 90s" at Hughesville High School. "Textron told me I could leave early for practice if I made up the time in summer," he recalls. "I thought that was great."

To a German, all this would sound very familiar. While the United States was abandoning apprenticeship as a way of training workers, European countries, especially Germany, held steadfastly to the tradition, which is seen as an essential part of industrial success in these countries. In 1989, only 2 percent of American high school students became apprentices. Sixty-six percent of German graduates did. "When a German student reaches 14 or 16, he or she has two choices," says Anne Heald, executive director of the Center for Learning and Competitiveness at the University of Maryland and considered to be one of the leading American authorities on the German "dual system." "One is an academic track, which leads to university; the other, one of more than 300 apprenticeships. About 60 percent of students choose apprenticeships." They have a wide variety of choices, from traditional trades, such as baking, cooking, auto mechanics and construction, to white-collar professions like insurance, retail and banking.

Backed by a century-old bridge, Tom Paternostro begins a session on the dynamics of bridge building.

Two or three years to qualify

Would-be apprentices shop around for what they want. From then on they work several days a week and on other days attend classes at a *Berufsschule* (vocational school). After two and a half to three and a half years, they "obtain their qualification" in their chosen occupation. "There is no guarantee of a job," Heald explains, "nor that the apprentice will stay with the employer. But after a number of years together, the retention rate is high."

The Danish school-to-work transition program is also widely admired by Americans, says Arden West, science teacher in the Williamsport program. Danish eighth-graders "shadow" jobs for a certain period to decide what interests them, then, like the Germans, make an apprenticeship-versus-university choice at age 16. Apprentices then alternate between periods of entry-level work and technical school. The Danish system emphasizes "metacognitive" skills—learning to work in teams, seeking new solutions to old problems. "Our companies regard themselves as part of the educational system," Lars Nielsen of the Danish firm Breuel and Kjaer told an American group.

It was the clear threat of economic obsolescence that first stimulated the Pennsylvania Youth Apprenticeship Program. In the mid-'80s, Pennsylvania's steel mills and related manufacturing plants were closing down, driven into oblivion by cheaper production overseas. A census of the state's industrial base, however, showed that while heavy industry was in trouble, small precision shops were thriving, particularly those tied to high-tech industries like aircraft and electronics. However, especially in the metalworking trades, continued prosperity depended on skilled labor, and the average age of a Pennsylvania metalworker was about 57. Half were expected to retire within a decade, and few replacements were in the pipeline. Trade schools were overrun with applicants for auto mechanics programs, but slots in the more exacting metalwork programs went begging.

Like high schools all over the United States, Pennsylvania schools weren't doing much to prepare stu-

Edwin Kiester has written for SMITHSONIAN *on the discovery of penicillin (November 1990) and the anatomy of a headache (December 1987).*

His apprentice students are, from left, Jamie Rakestraw, John Golder, Christopher Barto and Jayson Parent.

Apprentice Bobbie O'Connor (at board) learns about digitizing dress patterns from worker Alice Schuster.

dents for the industrial workplace. Fewer than 20 percent of young adults complete college degrees, yet the schools were concentrating on that 20 percent, says the University of Pittsburgh's Martin Nahemow, one of the planners of PYAP. "A lot of kids would be happier and better off in a skilled trade, but not much attention was paid to them." Graduates emerged from school with a diploma and very little else. Moreover, an artificial barrier had been erected between the worlds of school and work. Although more than half of high school juniors and seniors held part-time jobs, most were in fast-food restaurants or other low-level, dead-end employment. "Germany is preparing kids for good-paying jobs in industry," Nahemow says. "We were preparing ours for Wendy's."

Under the direction of Robert Coy jr., director of the Office of Technology Development in the Pennsylvania Department of Commerce, and with the assistance of Jobs for the Future, a statewide plan for school-to-work transition was agreed upon. Youth apprenticeship, initially focusing on the metal trades, would be the centerpiece. The program would be launched where precision shops were clustered and the need for trained workers was most acute—Pittsburgh, Philadelphia and York-Lancaster. Financial support came from the state, the U.S. Department of Labor, the Sloan Foundation and the Heinz Endowment.

The final kickoff date was set for September 1992, but Williamsport couldn't wait. Not originally targeted for a PYAP program, the city and surrounding Lycoming County had a pressing problem. For years, the county's eight high schools had funneled vocationally-minded students to a vocational training school, Pennsylvania College of Technology. But "Penn College" had lately been absorbed into the Penn State system and was becoming a four-year campus. There would be no further room for high school students. "We knew where we could get good people to run the program," says Robert Van Dine, executive director of the private, nonprofit Industrial Modernization Center, who is credited with getting the Williamsport project off and running. "We were sure local employers would be behind us. Penn College would rent us classroom space. PYAP had already done the background planning. We'd be the pilot project; they could learn from us."

Van Dine, a former Naval Academy football hero and ex-vice president of Bethlehem Steel, had strong connections in the business community. Within weeks, six employers had agreed to accept apprentices. Textron Lycoming took six; Grumman, two; smaller shops, one each. Six high schools also agreed to participate. A fully accredited academic program was set up under a retired superintendent of schools, Tom Paternostro, in which students would remain technically registered at their home schools. For their report cards, evaluation forms completed by the apprenticeship project would be translated into numerical grades.

Merrill Lambert, head of Auto Workers Local 787, says, "We can't have an apprentice taking a member's job."

Bob Van Dine's Industrial Modernization Center did most to get Williamsport apprentice program going.

When the program began, one of the first lessons was that the apprentices could expect a heavy dose of academics. "I remembered from Bethlehem Steel," Van Dine says, "that we had workers who were not capable of adding a column of measurements, dividing and getting a mean." Consequently, PYAP classes aren't like anything the students have been used to. Teaching is built around projects. Mathematics and science courses cover all sorts of lessons and principles that apprentices apply at work. Even social studies and English lessons are interlaced with technical asides. Students spend a good deal of their time learning in the real world.

The teaching schedule I saw was a far cry from the traditional classroom full of desks and chalkboards. Paternostro and science-math teacher Arden West drove the students to the nearby small community of Sonestown, where a century-old covered bridge spans Muncy Creek. Under the bridge, workers for the state Fish and Game Commission were dumping in hatchery-raised brook trout. The boys watched excitedly, figuring they'd come back to catch their limit there when trout season opened. Then West led them onto the bridge. While they sketched the structural details in their notebooks, he explained the geometric and physical principles used to distribute the weight of the bridge across the full span. The span rested on stone pillars but was not anchored to them.

"Why not?" the apprentices wanted to know.

"Because of frost and wind," West explained. Quickly he outlined the coefficients of expansion and contraction that govern how materials deform under stress. They "give" with small amounts of stress, then return to their previous shape when the stress is removed. Increased or repeated stress may bend them permanently out of shape or break them. Later the students repeated the lesson on a small scale, placing Popsicle sticks between bricks and adding weights until the sticks bowed and remained in a bowed position.

"We talk a lot about applied physics that relates to the workplace," West said afterward. "About work-energy relationships. How metal expands with heat and changes tolerances. About two forces coming from different angles. There are all sorts of physics lessons with useful application to industry."

The curriculum is flexible, to deal with questions that arise in the workplace. "Math is a real necessity in what we're doing," says Hubert Hakes of Norcen Industries, a precision-tool shop in Jersey Shore, where Christopher Burgess is an apprentice. "Especially trigonometry and geometry." Employers also asked for more work with decimals. Tolerances in metalwork often must be calculated to less than one ten-thousandth of an inch ("tenths," in shop-floor parlance). "I've had to learn a whole new language," an apprentice says. "We're using calipers and micrometers calibrated to one fifty-thousandth of an inch. I never heard about that when we studied decimals and fractions in school."

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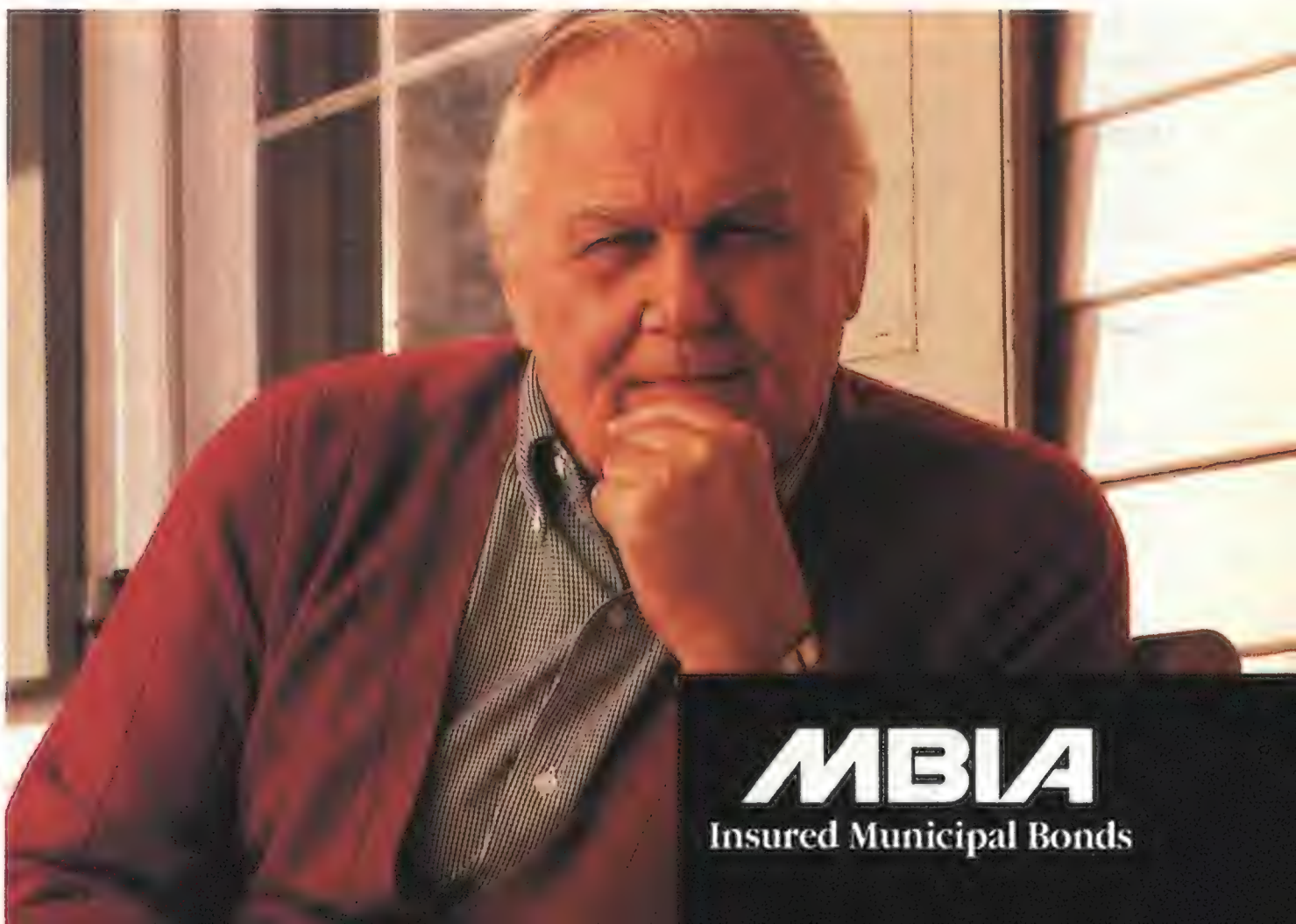

Apprentice Chris Barto's work at Tampella Power is typical. Although ostensibly training for metalwork, the apprentices usually get an across-the-board primer in all aspects of factory work. Chris started in "hook and book"—the shipping department—then moved on to machining, welding, fitting, and an introduction to the company's proud new computerized machining center, which replaces many of the tapping and drilling tasks once performed by hand.

"The best thing a kid can learn is the work ethic, how to cooperate with others, how to think for himself, punctuality, the importance of quality," says Gary Ripka of Lunaire, which is participating in the apprenticeship program. "And to ask questions if you don't know," Ripka continues, "not just say, 'Yeah . . . yeah . . . yeah.' Apprentices have a million questions and that's good, not just for them but the rest of us. The older guys ask themselves, 'Well, why *do* we do it this way, anyhow?' "

"It really comes down to having thinking people on the shop floor," says Donald Schlegel, president of Grumman. "One of our workers recently showed us how to reduce the setup time on a 400-ton press by 40 percent. That means we don't have to have backup parts while the press is down. We need that kind of thinking every day."

Tryouts all over the country

Across the country, other states and institutions are trying to bridge the gap between education and the workplace with variations of apprenticeship. Oregon has taken the first steps toward a statewide dual system of education patterned after Germany's. Wisconsin is in the early stages of devising a statewide apprenticeship system. In Broome County, New York, 25 high school juniors have enrolled in apprenticeship training, directed by Cornell University professor Stephen Hamilton, that includes manufacturing and engineering technology, administration and office technology, and health care.

The American Association of Community and Junior Colleges (AACJC) has instituted a program called Tech-Prep in nearly 400 community colleges. Tech-Prep combines two years of high school with two years' vocational education. Its objective, says Dale Parnell, AACJC executive director, is "to break down the walls between academic and vocational education" and "to prepare the 'neglected majority' for the fastest-growing occupations of the future." Tech-Prep, however, very rarely includes experience in the workplace.

Profiting from Lycoming County's example, Pennsylvania now has nearly 70 additional apprentices learning occupations at five sites in Philadelphia, Pittsburgh and York-Lancaster. PYAP's program for apprenticeships in health care was initiated in the fall of 1992. A task force from the Pennsylvania departments of Education and Commerce has been set up under Coy's direction to take PYAP statewide, working out competency standards developed by labor, industry and education for many occupational skills.

When Benjamin Franklin and Paul Revere were apprentices, the Colonies operated under the British Statute of Artificers of 1562. This closed-shop code required that young men whose families could not guarantee their support in agriculture or the professions must be indentured to a master for seven years to learn a trade. Terms of the indenture were worked out between the youth's parents and the master. For a £10 fee a Boston printer agreed to provide Franklin with food and clothing for seven years (some indentures specified schooling, too). Often beaten and forced to perform many menial chores, Franklin ran away to Philadelphia, where he made his reputation as publisher of *Poor Richard's Almanac.*

American history is studded with the stories of apprentices who worked their way up to journeymen and masters, eventually growing rich. John Deere, who developed the "plow that broke the plains," began as an apprentice to a blacksmith in Vermont. Paul Revere, Horace Greeley and George Westinghouse similarly succeeded as apprentices. Often, however, apprentices were mistreated and cheated on the terms of the contract; many endured substandard living conditions and were little better than slaves.

When the country turned from handcrafted to manufactured products, low-paid or unpaid apprentices became laborers to exploit rather than train. A 1920s

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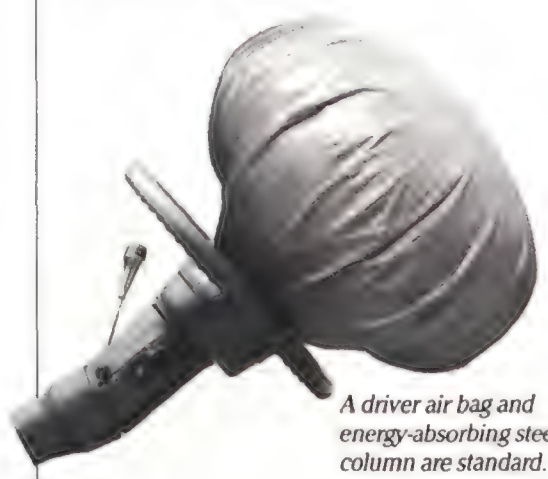

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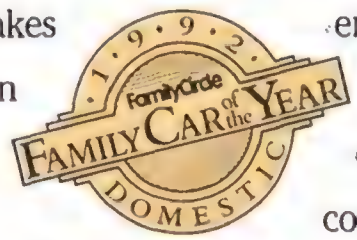

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During break, Chris Barto (left) kids with Tampella welders Gale Grey, Tom Sessamen, Ryan Neatrour.

study by University of Chicago professor Paul Douglas reported that a hat manufacturer, when asked how he could make hats so cheaply, replied, "By using apprentices." Since they could be hired for a fraction of the wages of journeymen, the number of apprenticeships became a raging issue in labor relations. To a large extent it still is. In fact, the battle to restrict apprenticeships led directly to the foundation of the printers' and ironworkers' unions. One of the founding principles of the Federation of Organized Trades and Labor Unions, the precursor of the American Federation of Labor, was the need for uniform apprenticeship laws, including a specific term of three to five years for apprentices.

Not surprisingly, with scarce jobs at stake, organized labor today eyes "youth apprenticeship" warily. "Some trade union leaders and officials have feared the worst—an attempt to undercut the existing apprenticeship system and to weaken industry training standards in unionized sectors," declares a report prepared by the AFL-CIO for Jobs for the Future. "Others have expressed fears that a focus on high-skill training for young people might come at the expense of incumbent, unionized employees." Labor's concern about youth apprenticeship has delayed or watered down programs in several states.

In Williamsport, labor unions were included early in the apprenticeship program as "stakeholders," in Van Dine's term. Two of the six participating firms are unionized—Tampella Power by the Brotherhood of Electrical Workers and Textron Lycoming by the United Auto Workers. The unions' perspective is represented on the governing board by Merrill (Butch) Lambert, president of UAW Local 787 at Textron Lycoming. As Lambert acknowledges, there is still some restiveness among union members.

Workers are vigilant to be sure that apprentices aren't filling a union member's job at a time when, Lambert says, Textron recently has been laying off workers to reduce its work force from nearly 800 to about 500. "We can't have an apprentice taking a member's job. The apprentice is only supposed to be learning how to perform tasks that he will apply in the future as a worker. The company had to understand that a union member working with a student would not be able to maintain production and instruct at the same time, so there would be some loss of production."

The union also has insisted on a voice in policy and demanded that students study the history of the labor movement. "There are those [in the membership] that will never feel completely at ease with the program, but the large majority of our members are very enthusiastic," Lambert testified before a U.S. House subcommittee hearing on youth apprenticeship in May 1992. "We must do whatever we can to improve our community so that our youth will have a future here. Some of them could be our own sons and daughters."

"Overall," says Martin Nahemow, "there are two sets of people who question youth apprenticeship programs. One is unions. The other is vocational education teachers." Vocational education, Nahemow points out, is underwritten by the federal government, and "voc-ed" teachers are concerned about threats to jobs. Other educators and some politicians also criticize youth apprenticeships. They argue that apprenticeship modeled on the German dual system shortchanges 16-year-olds by pushing them into lifetime career decisions they are ill-prepared to make. They stoutly maintain that a solid academic education—something rarely given today by U.S. high schools—is the best ticket to success, whether the student chooses college or moves directly into the workplace. Germany's dual system is also said to be undemocratic.

A chance to choose a faster track

The counterargument is that schools already "track" students by assigning them to "slow learner" classes as early as third grade. In any event, a boy or girl's apprenticeship decision is anything but irreversible, in part because one of the few really effective elements in the American educational system is adult education. Van Dine is proud of pointing out that one 1992 apprentice applicant is a National Merit Scholar who plans to complete the apprenticeship, then go on for an engineering degree. Anne Heald explains that 15 percent of young Germans who choose the academic track also complete apprenticeships. The bulk of German middle-management personnel, as well as many top managers, she notes, come out of apprenticeship programs.

As for the argument about academic education, half of America's high school students graduate with a general education diploma—the worst of both worlds. Vocational schools are well equipped, but equipment in these days of computerized manufacturing is often

out of date. Gary Ripka of Lunaire points out that much of his firm's equipment is less than a year old. "It's hard for vocational schools to keep up with that."

Apprentice John Golder worked in his father's welding shop before coming to work at Lunaire. "Our equipment is primitive alongside of this," he says. "Here it's water-cooled, digital, robotic. Really up to date."

In Lycoming County, all parties to the PYAP seem satisfied so far. The program has enlisted 12 more manufacturing apprentices for the current term and has added 10 apprentices (male and female) in a health-care program. Employers say, in the words of Lunaire's Ripka, "It's reaffirmed my faith in 17-year-olds." They also deny that apprenticeship is a form of cheap labor. "When you compute the additional cost of workmen's compensation, insurance, Social Security, the mentor's time, the production time lost during mentoring, the cost of wasted materials or scrap," Norcen's Hubert Hakes explains, "it's probably costing us five times Chris Barto's $80 a week."

As for parents, Van Dine says, "I haven't found one who hasn't seen a positive change in their child." Curt Rakestraw, a farmer whose son Jamie is an apprentice at PMF Industries, first convinced the boy not to enroll in the program, then allowed himself to be talked into it. "I'm glad I did," Rakestraw says. "He wasn't getting anything out of school, and he was getting in with a bad crowd. Now he's completely focused on the program. I used to have to shake him two or three times to get him up for school. Now he's up before the chickens—and works hard."

If the students are being shortchanged educationally, you couldn't prove it by them. "I really commend the teachers," Chris Barto says. "I thought I might get less education, but I don't think that's true. They do in two days what my other teachers did in five."

"We haven't found the silver bullet," Bob Van Dine says. "But we're off to a good start." Paul Batkowski, labor relations supervisor at Textron Lycoming, offers a final word: "In this country, nobody builds things but the blue-collar workers. They're the ones who make the cars, the planes, the engines. When you're 30,000 feet in the air you want to be sure that guy on the ground knew what he was doing. I'm not exaggerating when I say, producing good workers can be the difference between people living and dying."

Farmer Curt Rakestraw tried to keep son Jamie out of the apprentice program but then changed his mind. "I used to have to shake him to get him up for school. Now he's up before the chickens—and works hard."

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Roadrunner parent carries hognose snake back to its nest, where four voracious fledglings await their meal. Within a four-hour period, the author watched parents return 54 times with new offerings for their brood.

Article and photographs by Wyman Meinzer

Beep! Beep! Better pull over, folks— it's the roadrunner

Yes, this leggy Southwestern speedster is a real bird, and a tough customer, too— as Wile E. Coyote learned the hard way

As a young boy of perhaps 14, I once was afflicted with a misdirected inspiration to try to chase down a roadrunner. A friend and I had noted the activities of a juvenile bird frequently seen cruising down a fencerow inside an old field. On one hot June day we observed the movements of this unsuspecting roadrunner and immediately gave pursuit. Within a few minutes both bird and boys were exhausted. When we were almost ready to give up the chase, the confused roadrunner darted into a tangle of vines and we captured him. After a few minutes of inspecting our captive we released him unharmed. It was the last time I ever tried to run down a roadrunner.

I have spent 35 years pursuing and watching this amazing speedster. I grew up on a ranch in the badlands of north Texas, so it was only natural that I encountered a variety of wildlife when I scoured the ravines and mesquite flats for cattle. I didn't have to venture far to find roadrunners; I just opened the door to my own backyard. Their darting forms could be seen almost anytime chasing the whiptail lizards that used our old rock fence for a perch. Often as I sat

quietly watching, a roadrunner would come trotting close, seemingly oblivious to my presence. Once when I tried to photograph one of them the bird came so close I couldn't focus, and I was afraid it would peck the lens. Now, I think it was just curious about the look-alike reflected there.

I have spent many of my adult years photographing and writing about wildlife in the Southwest, but no other wild creature has so engaged my curiosity as this unique member of the cuckoo family. Quarrelsome, funny, serious, playful, fearless and protective: the roadrunner is endlessly fascinating.

Its nicknames are well earned

The bird, *Geococcyx californianus*, is formally known as the greater roadrunner, but because of its hunting antics, physical characteristics and general attitude, it has earned a variety of nicknames. In Texas it is often referred to as the chaparral cock, or simply chaparral; in New Mexico (where it is the state bird) it is called lizard-eater or snake-eater; and in Mexico, *paisano* (compatriot or fellow countryman). The roadrunner has populated legends and folklore for centuries, but for many people it is most closely associated with the high-octane cartoon character who inevitably triumphs over its nemesis, Wile E. Coyote. (Indeed, amazing as it may seem to residents of the Southwest, a lot of people from other parts of the country are surprised to learn that the roadrunner is a real bird.)

The roadrunner is built for speed, with long legs and a sleek body; it's about 24 inches long and more than half of that is tail feathers. Whether the roadrunner is on a casual stroll or engaged in a hunting foray, the stride of an adult roadrunner is six to eight inches on a slow walk. When the bird is running, the gait stretches to a ground-eating 19 to 20 inches.

Along the caliche roads and cow trails where I often rode a horse or drove a truck around the ranch, I would frequently spot a lone chaparral sitting on a fencepost, watching for insects or lizards in the tabosa grass below. (The roadrunner is one of the few members of the cuckoo family that doesn't stray far from the ground; it rarely flies, and a fencepost or tree is about as high as it goes.) As I passed a roost the roadrunner would usually leap from its perch, volplane to the ground and race alongside. I have never measured the speed of these birds, but many have tried. In the early 1920s, naturalist H. H. Sheldon clocked a running paisano by automobile: "The car gained on the bird until about five yards separated us, and I saw it was running at its utmost speed. I instructed my friend, who was driving, not to press him further, and for fully three hundred yards the bird ran from the big monster in pursuit, the while the speedometer registered exactly fifteen miles per hour." That compares favorably with the pace of a human miler.

The chaparral has long been revered as a magical creature by many native Americans. It was called war bird, snake-eater and medicine bird by different groups. The Pueblo Indians, whose religious beliefs and legends encompass more than 100 species of local birds, hold the roadrunner in high regard. The feet of the roadrunner are zygodactyl—two toes point forward and two point backward, making the tracks confusing; it is difficult to determine which direction the bird is going. At the pueblo of Cochiti it was believed that a safe afterlife could be ensured by making roadrunner-like tracks around the deceased to confound the evil spirits. The Tarahumara Indians of the Sierra Madre in Mexico, best known for their endurance running, hunted the roadrunner, and their legend held that by eating the meat the Tarahumara would be endowed with great speed and vigor. Centuries old petroglyphs in Texas depict images of roadrunners among scenes of battles.

The roadrunner plays an important role in native-American rituals of courage because of its willingness to take on a dangerous opponent, the rattlesnake. The most popular story, one that I was told all my life, was

Raising feathers to soak up the morning sun is a daily ritual to raise body temperature after cool nights.

A two-foot-long bull snake is losing its final battle against a roadrunner. The feisty bird started the attack by pecking at the reptile's head, making it punch-drunk, before grabbing the prey's upper jaw in its beak.

about how the roadrunner builds a corral of thorns around a sleeping rattlesnake. The snake then impales itself on the thorns when it tries to escape. I believed the story for years; the reality, though, is a little different.

During my years watching roadrunners I have been able to observe many interactions between these birds and snakes. Some of the reptiles were large diamondbacks; others were the quick, nasty-tempered but smaller massasaugas, or pygmy rattlers. An adult roadrunner would circle the diamondback and drop its wings in an apparent test to see if the snake would strike. After circling the snake two or three times, and possibly finding the rattler too large to eat, the bird would go on its way.

When the roadrunner encountered the smaller massasauga, however, the spirit and spunk of the feisty bird was quickly revealed. Upon seeing the bird, the massasauga coiled defensively. The roadrunner would crouch low and begin to circle the snake, dropping its wings to test the snake's quickness. As the snake struck, the bird would leap back quickly, then leap forward, grabbing the rattler by the head and tossing it into the air. When the snake hit the ground, the bird was on it instantly, grasping the head and beating it repeatedly against a rock or log. If the snake protected its head underneath its coils, the roadrunner would seize the rattler by the body and beat it against the ground until the snake relaxed, exposing its head. This furious activity would last from 15 minutes to an hour and a half. Once the snake stopped moving, the bird picked it up in its beak and dashed to the nest to feed its fledglings.

A roadrunner kills reptiles—horned lizards, whiptails and nonvenomous snakes—using the same technique. But if its prey is too large to be consumed the bird breaks off the attack.

I have found the paisano to be an opportunistic feeder whose diet reflects the diversity and relative abundance of insects and reptiles in a given area. If the cricket population is high, then crickets are the preferred prey. Other roadrunner food includes moths, centipedes, scorpions, millipedes, tarantulas, cutworms, spiders, bumblebees, mice, rats and young rabbits. If pressed by a shortage of such fare, the chaparral tries prickly pear apples and sumac berries.

The roadrunner has not always been popular among its human neighbors. The efficiency with which this bird dispatches large numbers of insects and reptiles led some to consider it a probable predator of game bird species, most notably, quail. Many people shot roadrunners on sight, and in the 1920s a bounty was placed on them. Further research proved that while the roadrunner did prey on baby quail, the bird did not significantly affect the quail population. Roadrunners are now protected under federal and state laws.

The range of the roadrunner extends across the Southwestern United States including California, Colorado, southern Kansas and central Oklahoma—and south into central Mexico. The bird is found at elevations that range all the way from sea level to altitudes of 7,500 feet.

Mr. Meinzer's book The Roadrunner *(Texas Tech University Press) will be published later this month. He lives in Benjamin, Texas, with his wife and sons.*

At left, roadrunner hesitates during initial spar with an assertive common collared lizard. The bird wins the match by beating the lizard against a rock (above) to kill it and break its bones, possibly for easier ingestion.

Roadrunners are nonmigratory and have evolved into adaptable creatures that can survive in diverse habitats. During critically cold periods they roost in dense trees or shrubs that shield them from the wind. To conserve body fuel their core temperature drops about seven degrees during the night. The roadrunner's morning sunning ritual begins at dawn; it stands in the early-morning sunlight, usually on the east side of a brush thicket, its back to the sun, wings partially extended and feathers ruffled to expose the black-pigmented skin on its back. The soft, black, downy feathers located around the pigmented area absorb heat and form an insulating layer over the black skin that prevents heat loss while the bird is sunning. The bird maintains this sunning position throughout the cool hours of the morning and doesn't begin to hunt until the ground temperature is high enough for reptiles and insects to become active.

The most attractive aspects of the roadrunner's behavior are its curiosity and acceptance of human activity. Around our home in the badlands the chaparral ate dog scraps, stood on top of the ranch vehicles and chased whiptail lizards across the yard. Once, my mother mentioned that she kept hearing the sound of something hitting the window above the air conditioner. When the windowpane rattled again, I walked outside; on top of the air conditioner stood the ruffled aggressor, squaring off for another attack on the intruder reflected in the window. During the next few days, I saw the same bird attacking our truck window as well as the exterior rearview mirror. This bird had claimed our yard and driveway as its territory and was defending its domain against perceived outsiders.

My first extended encounter with a pair of roadrunners was during the winter of 1977. Two adults began to stop by my workshop and stare at me through the door. The wind from the north was cold so I offered them some tidbits of meat. No matter what I gave them, they ate with gusto. When the warm winds of spring settled over the mesquite-covered badlands, the roadrunner pair made fewer and fewer visits. I could hear the cooing sounds (more than a dozen calls from cooing to clacking have been recorded) of the male in the brush, his bid to win the approval of the female.

During the mating season, the male paisano selects a high vantage point from which to call—a fencepost, the rocky rim of a canyon or perhaps the rooftop of a barn or house. He bows his head until his bill is thrust between his legs, then slowly raises his head as he pours out his cooing call. To help attract the female, the male usually offers some enticement—a twig for the nest or a lizard or mouse. Holding the gift firmly in his mouth, the male continues to call, wagging his tail back and forth. When a receptive female appears he approaches her, holding his gift. Then with a leap, the male lands on her back and emits a whirring call until copulation is achieved. Before mating is completed, the female snatches the gift from his mouth. The ritual is always the same.

During the time I have spent with roadrunners there have been very few opportunities to watch nesting pairs with their brood. But one cold, wet day in early March of 1982, I noticed an adult roadrunner carrying a twig in its beak as it traveled toward a clump of juniper

Roadrunner mating ritual doesn't always end amicably. Male, holding a lizard gift in beak, copulates with female (left). Another time, female grabs the offering (above), but male wants to play tug-of-war instead.

A parent feeds a lizard to its hungry fledgling, which may take several minutes to swallow the large meal.

trees. As I moved quickly to the thicket, I saw that a nest was being constructed nearly nine feet up in a juniper tree. Made of small mesquite twigs, the nest was approximately 18 to 20 inches across and lined with grass, feathers, leaves and pieces of string. I kept watch on the nesting activity for several days and noted when the female began to incubate the eggs. I did not want her to become alarmed and abandon the nest, so I was careful not to disturb her. After a few days, I placed a stepladder near the nest and left it. Soon I began to stand on the ladder for a few minutes each day. A few days before the first egg hatched, I placed small bits of raw meat on the limb near the nest. When I returned I found that she had taken the food. Soon she left her nest to greet me when I climbed the ladder, taking meat directly from my fingers.

With cameras ready, I awaited the hatching. Roadrunners lay from two to five eggs, and during incubation both adults share the sitting chores. The plumage of the newly hatched roadrunner is coarse, whitish and hairlike. It is so sparse that the almost black, leatherlike skin is exposed. Spring in north Texas can be unpredictable; cold weather can move in with little or no warning, and so the first few days after the hatch the female sheltered her young and rarely left the nest. The male was constantly hunting, bringing grubs and small insects for the tiny "roadsters." When the female did leave the nest the male would take her place. The female would stand in the warming sunrays and preen for several minutes, and then go into the mesquite thickets.

When she returned from a hunting trip, the female

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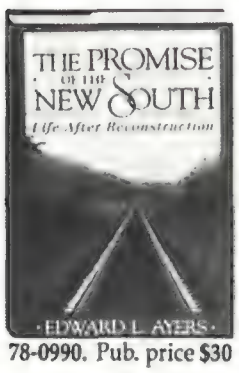

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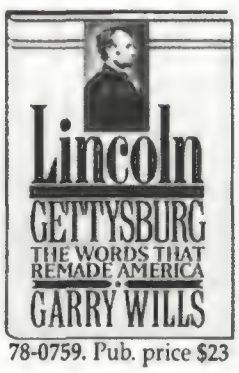

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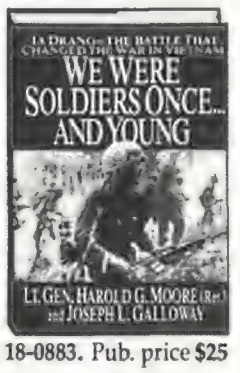

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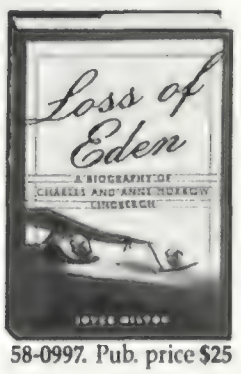

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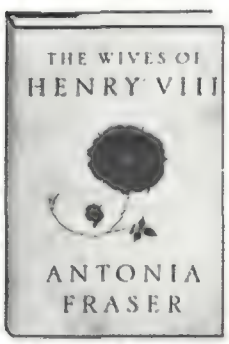

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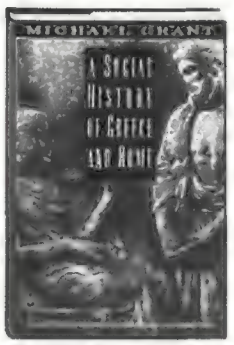

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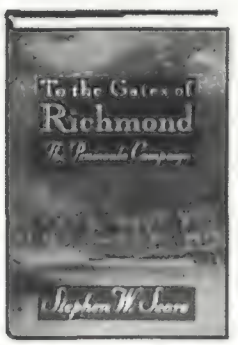

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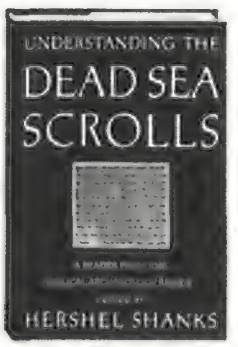

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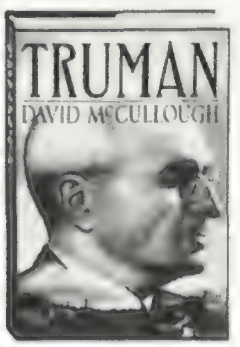

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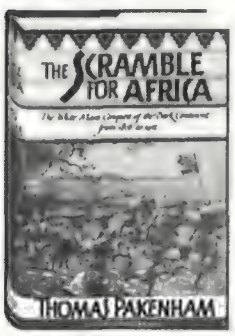

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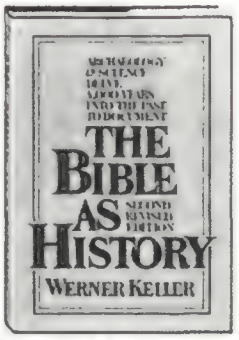

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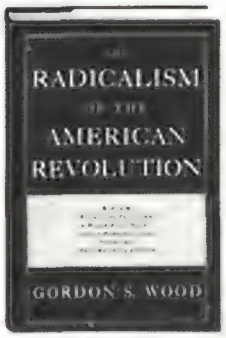

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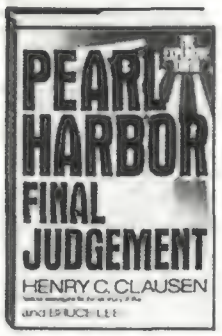

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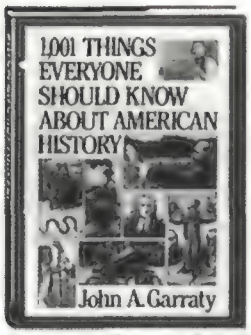

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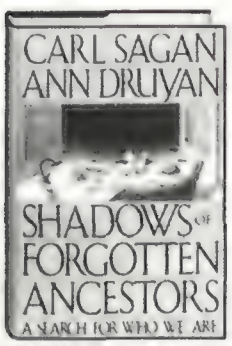

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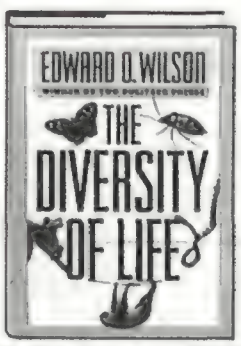

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This fledgling has just left nest; during its brief survival training it will be fed regularly by both parents.

frequently treated herself to a sand bath in an area not far from the nest. Holding the captured meal—a grub or grasshopper—in her beak, she would lie on her stomach with beak flat on the ground and scoot along, kicking sand into the air and onto her ruffled feathers. After her sand bath she would run to the nest and feed her capture to the fledglings. As she entered the nesting tree, her mate left.

After a week to ten days, warmer weather allowed the adults to engage simultaneously in gathering food. By then I had decided that perhaps they trusted me enough to follow them while they hunted.

Before our first outing, I gathered my lenses and a variety of film. I had no idea how far the birds ranged during their forays, but since the average outing took up to 45 minutes, I wanted to be ready. As I waited on the ladder, one of the adults came to the nest with a small horned lizard. The bird fed one of the voracious fledglings, and then was back on the ground again and running—with its new human friend close behind.

Once in the brush, the adult slowed to a deliberate pace, investigating each grass clump within sight. As we walked through the thick grass cover, the bird would occasionally drop its wings, take a few steps and stop. I soon learned that this was its way of flushing insects or lizards from their hiding places.

The main food staple for this nesting pair was horned lizards; it was too early in the season for the first crop of grasshoppers. During my numerous forays into the brush, I never once spotted the quarry before capture. One moment the bird was walking along, the next instant it dashed for a grass clump and pulled an unsuspecting horned lizard from its lair. Instantly the bird broke into a run to the nearest rock or piece of wood. There, it would beat the lizard repeatedly against the rock until the head was bloody and no sign of life was evident. The paisano then ran at half speed to the nest.

One of my favorite moments during our many outings occurred when I approached the nest early in the evening. One of the adults was standing near a small plank. As I came nearer, the roadrunner walked around the piece of wood and stopped often to peer under it. I stood and watched for a while before reaching down to turn the plank over. When I raised the board, the roadrunner dashed underneath and, in a flurry of feathers, emerged with a whiptail lizard in its beak.

The juveniles in the nest began leaving the nesting tree about 21 days after hatching. The first indication that the young were ready to leave was when I saw them perched on limbs a short distance from the nest. The following day, the oldest juvenile was on the ground beneath the nesting tree and soon began to move farther away. The others began to leave within a couple of days after the departure of the most mature fledglings. With each passing day, they traveled farther from the nest, and the adults continued to feed them at regular intervals. Perhaps three to five days following the juveniles' departure from the nest, they were on their own, though they stayed under thick cover where shrubs and trees allowed easy escape from predators like raccoons, feral cats and bobcats.

The adult roadrunners proved to be considerate and protective parents throughout the seven weeks that I spent observing them. When bringing food to the fledglings, the adult always stayed long enough to ensure that the lizard could be safely ingested by the young. On one occasion, the adult brought a rather large horned lizard to the nest and dropped it into a waiting mouth. The juvenile attempted to swallow the overly large helping, but failed. The adult finally pulled the lizard from the young bird's mouth and offered it to another. Again, it could not be swallowed. Finally, when the adult realized the meal was more than the nestlings could handle, the adult swallowed the lizard and departed for another hunt.

With the passing of the years, I have moved on to the study of other creatures. But whenever I drive through the badlands, an excitement stirs inside me when I see a roadrunner, and I know that my love affair with this fascinating bird is not over.

Young *paisano* trots down the trail on a hunting foray, vigilant for unsuspecting grasshoppers and lizards.

The "growth cycle" of the prostate: from birth through later life.

As a male develops from childhood through maturity, his prostate grows, stops growing, and can then start growing again in later life. To help you understand the vital role the prostate plays, here are some important facts.

The prostate at birth

Only males are born with a prostate gland. It's located at the base of the bladder, as shown in the diagram.

At birth, a baby boy's prostate is about the size of an almond, and it remains that size throughout childhood.

The prostate at puberty

During puberty, the prostate doubles in size. Then it stops growing. This is normal. The prostate is preparing for its main role in life — helping sexual reproduction.

The prostate supplies the milky fluid that helps transport the sperm through the penis during ejaculation. The prostatic fluid also aids conception by providing support and nourishment for the sperm and helping to make the vaginal canal less acidic.

The renewed growth of the prostate at middle age

In most men, after age 45, the prostate starts to enlarge and may continue to enlarge for the rest of a man's life. This growth may be benign prostate enlargement, a noncancerous condition. A major cause is the activity of a key hormone.

By itself, benign prostate enlargement isn't a problem. But, the prostate gland surrounds a section of the urethra, the tube that carries urine from the bladder through the penis. As the prostate continues to grow, it can squeeze the urethra (like pinching a straw) and interfere with the normal flow of urine, causing uncomfortable and embarrassing symptoms.

The prostate in later life

Not every man develops an enlarged prostate. And in those men who have the condition, it is not always progressive.

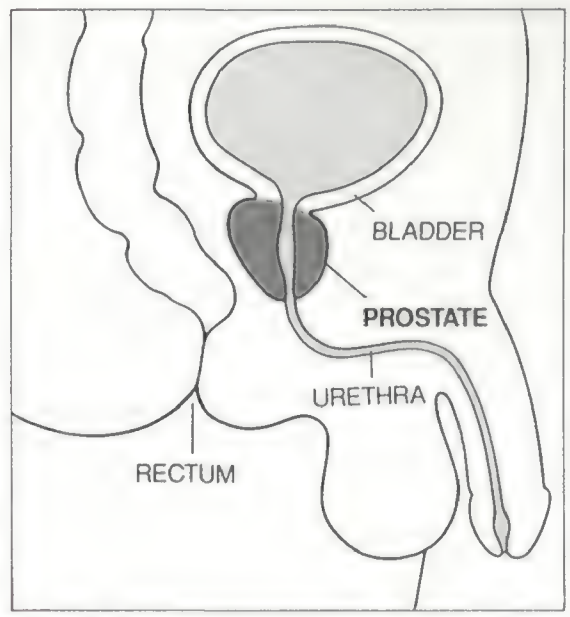
However, prostate enlargement is a common medical finding. In fact, more than half of men over 50 have an enlarged prostate.

The urinary symptoms of an enlarged prostate

Among the symptoms commonly associated with an enlarged prostate are more frequent urination, especially during the night, or the sudden, almost uncontrollable urge to urinate. The added pressure on the urethra can also cause a weak, interrupted urine stream, a sense of the bladder not emptying completely, leakage, and difficulty in starting urination. It can even result in total blockage, a serious condition.

Why you should consult the doctor

Symptomatic benign prostate enlargement can be helped. Recent advances in treatment have been made, and today your doctor has several options. So now, more than ever, is an excellent time to consult your doctor. You and your doctor should discuss which treatment option would be best for you.



The prostate is located at the base of the bladder. It surrounds a part of the urethra, the tube that carries urine from the bladder through the penis. As the prostate enlarges, it can squeeze the urethra and cause urinary problems.

If you experience any symptoms, see your doctor and speak frankly about the problem. A simple rectal examination enables the doctor to feel, with a gloved finger, the size and condition of the prostate. This exam, and other tests the doctor may recommend, will also help to rule out the possibility of prostate cancer. Benign prostate enlargement is not cancer and does not turn into cancer.

Talk to your doctor, soon. It's important to you—and your family. And, for a free informative booklet, "What every man should know about his prostate," call 1-800-635-4452.

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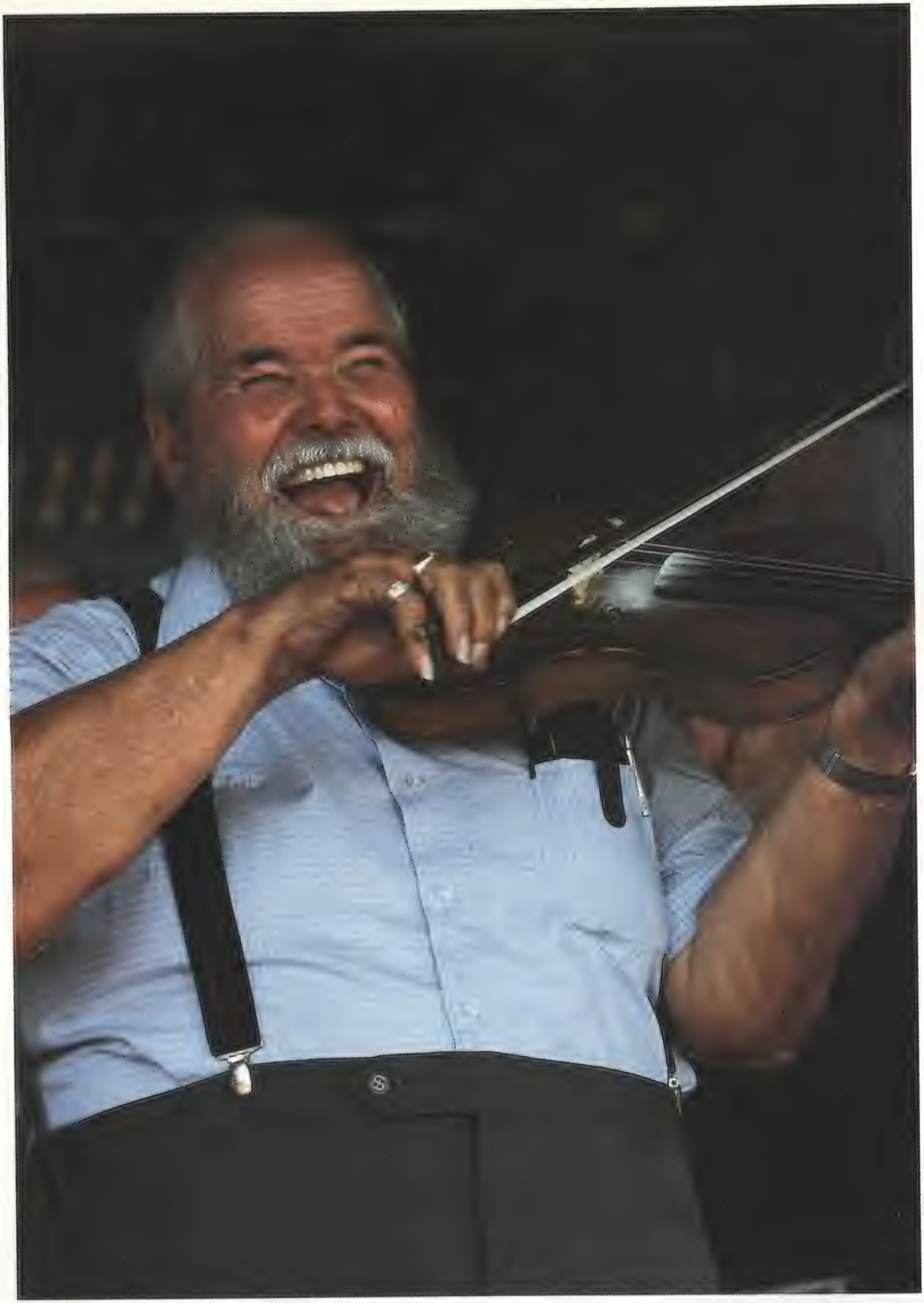

Cheery fiddler Chubby Wise was a hit at Summersville, as were Bill Monroe and his Blue Grass Boys (above). When Monroe named band for his native Kentucky, it turned out that he was naming a style of music, too.

By Bruce Watson

This here's all for foot tappin' and grin winnin'

At 500 annual festivals around the globe, the friendly harmonies and hillbilly beat of bluegrass keep bringing folks together

Corn, potatoes, oats and hay once grew on the Kitchen farm in Summersville, West Virginia. But now Edgar and Eunice Kitchen grow a special kind of grass native to Kentucky.

No matter which route you take, the road to the Kitchen farm is long and lonesome. Situated in the heart of the Appalachians, Summersville (pop. 2,906) is a day's drive from the nearest metropolis. The steep, sweeping hollows that make "almost heaven" a West Virginia slogan pull up short here, leaving rolling hills, lakes and sleepy, front-porch towns with avuncular names like Carl and Calvin. You don't pass through Summersville on the way to anywhere, but in late June, several days before the Kitchens' annual bluegrass harvest, company comes to call.

From every state in the Union they come, and from Canada, Japan, Norway, Germany and Australia. Rolling across the mountains in vans, campers and recreational vehicles larger than some houses in these hills, the guests "make themselves to home," all right. Parked cheek by fender with other monolithic RVs, they raise awnings and festoon them with brightly colored lanterns. On makeshift patios they set up folding furniture, welcome mats, and redwood plaques carved with the family name and hometown.

By Wednesday, the day before the start of this veritable bluegrass Woodstock, the Kitchens' campground is a city of RVs hunkered down on the hayfields. Then late in the evening, about sundown, the guests open battered instrument cases, take out guitars and banjos, and the pickin' begins.

Beneath the oaks and maples behind the stage, a small circle of strangers resurrects a melody as old as the hills. A bone-thin mandolin player in striped shirt and cowboy hat juggles the jaunty tune and hands it to a burly man in a baseball cap with a banjo slung across his belly. The banjo rings as his chubby fingers run the tune up the neck and slide it to the fiddler, whose sweetly flailing bow seems a part of his arm. In four-part harmony (and a little discord) the band sings mountain songs—"Sunny Side of the Mountain" and

Photographs by Catherine Karnow

Jim (on guitar) and Jesse McReynolds do harmonies "in a way that only members of the same family can."

Bill Monroe, 81, the father of bluegrass, bends to the mike to play his mandolin "soft, real light and easy."

"Mountain Dew." When they unpacked their instruments they were strangers. But after a few songs, they know where they stand and what they stand for. They believe in the gospel according to bluegrass.

Whether in Tanglewood, Marlboro or Monterey, most music festivals are autocratic. The masters perform onstage; audiences listen, applaud, head home. But a bluegrass festival is democracy in the key of G. Here at Edgar and Eunice Kitchen's "Music in the Mountains," and at any of nearly 500 annual bluegrass festivals around the world, fans take the music into their own hands, making all the world a stage.

Some say bluegrass is a religion. Others call it a disease. Like the banjo itself, whose twang can clear clogged sinuses and remove stubborn wallpaper, the mountain music is an acquired taste. Since its birth in the late 1930s, bluegrass has been dismissed as "hillbilly music" and relegated to a small corner of the country music scene. But bluegrass festivals draw flocks of zealots who drive for days, gorge themselves on banjo, fiddle, mandolin and Dobro (an acoustic slide guitar), then scatter, vowing to make it to next weekend's gathering in another dark hollow some hundreds of miles hither.

Religion or disease? As one of the faithful, I favor the former. Raised closer to malls than mountains, I am neither hill- nor city-billy. I can't say bluegrass is in my blood. But last June I went to Summersville to get my regular transfusion and to find out if a suburb-billy could pick his banjo with the virtuosos in the heart of the heart of bluegrass country. If courage prevailed, I'd join in around the ol' RV on "Foggy Mountain Breakdown" and the other five tunes I knew. But even if my lightning fingers failed me, I had come to see a rare musician.

Lightning-fingered Bruce Watson picks the banjo only in his living room but writes often for SMITHSONIAN*—on topics he can't resist.*

At 81, Bill Monroe is still alive and pickin'. It was Monroe, the acknowledged father of bluegrass music, who added rapid-fire mandolin and soaring vocals to the church and folk music of his native Kentucky, creating his trademark, that "high, lonesome sound." After World War II, he hired the dazzling banjo player Earl Scruggs and the lazy-lipped vocalist Lester Flatt, who later formed their own group. By 1950, Monroe's band, the Blue Grass Boys, named in honor of Kentucky, was the proving ground for up and coming pickers. (In time, the band's name became the name of the music.) On Saturday afternoon, 60 years after he first stepped onto a stage, Monroe would play at Summersville, making my trip a pilgrimage to see the man President Ronald Reagan honored as "the only living American who created a style of music." Religion or disease? Just pick it, boys.

Thursday morning a light drizzle fell over Summers-

ville. Bluegrass festivals are steeped in traditions, and one of them is rain. Thursday's shower kept a few fans on their makeshift porches, but following a prayer offered at high noon, the music began and the sprawl of lawn chairs in front of the stage filled beneath clearing skies.

No mere series of concerts, a bluegrass festival is a total immersion in culture and camaraderie. People come for the music, but they stay for the company. Like tourists at a national park, fans drive in and claim a patch of ground. They check out the scenery, then head "home" to cook, nap or greet neighbors. They compare instruments, swap tapes and revel in meeting folks who look down their nose at a banjo only when they're playing one. From 9 A.M. to midnight the music can be heard all over the campground. The air is thick with it. And if you happen to miss a band, they'll be at next week's festival down that lonesome road.

"Weren't you at Bean Blossom this year?"

"Sure was. You, too? Thought you looked familiar."

By Thursday afternoon, a half-dozen converted Greyhound buses bearing band names had parked alongside the Summersville stage. More than any other form of music, bluegrass is a road show. Country music star Hank Williams jr. makes fun of the "hillbilly bus" and sings gleefully about flying from show to show, but bluegrass musicians are proud of their hard travelin'. On successive weekends last summer, the Bass Mountain Boys played festivals in Indiana, Georgia, Oklahoma, Maryland, North Carolina, Pennsylvania and Kentucky. The bus and the two-lane are as symbolic of the music as the banjo, and when bluegrass musicians sing "goin' down that road feelin' bad," they aren't just whistling "Dixie."

Like nomads following their herds, bluegrass fans hunt and gather the mountain music. Scattered across the Summersville campground were RVs from 25 states, from Florida to Alaska. Every June, Lyle West, a retired carpenter, drives from Fairbanks, Alaska, to Summersville, videotapes the entire festival, then heads home. "This festival is the king of 'em all," said West, who also follows the flock to a winter festival in South Carolina.

If festival fans seem like old friends, it's because they've become bluegrass buddies. "We know two or three hundred people here just from festivals," said Howard Van Meter, a retired Kentucky mailman who logs thousands of miles a year in search of a few good twangs. "Coming here's just like a reunion."

In any bluegrass crowd there are folks who seem to have stepped out of folklore. Seated in the front row at Summersville, sporting shoulder-length white hair, a bushy beard and a top hat, was the granddaddy of

Guitar-size Little Jimmy Dickens (left) pleases the crowds with big smiles and lots of corn pone humor.

Beth (on banjo) and April of the Stevens Family, play at festivals with mother on bass and father on guitar.

Alison Krauss, at 21 the top female bluegrass musician, is famed for fiddling and songs some call "newgrass."

bluegrass nomads, "Hobo Bob." A retired computer technician, Bob Larkin doesn't play an instrument, doesn't even sing along. But Summersville is one of 40 festivals he attends annually, living out of his van.

"If I only went for the music, I'd probably go to a dozen a year," Hobo Bob said in a gravelly voice. "The fans and musicians are what keep me coming back. The people are just so friendly and helpful."

Festivals are held year-round, but the big wave of the annual bluegrass migration stretches from May to October. You could set your calendar by the festival schedule. If it's early May, it must be the annual festival in Sigourney, Iowa. Memorial Day brings the music to Beaver, Pennsylvania; Glen Rose, Texas; and Yosemite National Park. By June, they're pickin' down in Dahlonega, Georgia; up-country in Manitowish Waters, Wisconsin; out West in Grass Valley, California; and in the Jerusalem of the genre, Bill Monroe's birthplace of Rosine, Kentucky. Come July, festivals blossom like oranges. By November, when the music moves indoors, bluegrass festivals will have resounded in 45 states. If you don't mind hearing mountain music on the waves, an annual "bluegrass cruise" brings several bands aboard a cruise ship to the Bahamas each February. Hey, Earl, pick a little of that "Nassau Mountain Breakdown."

All Thursday afternoon the music raced as if bands had to catch a bus. At trailers near the stage, fans sampled finger-lickin' food; bought Stetson hats, and bumper stickers that read, "Bluegrass Music: Country Soul" and "Ralph Stanley for President"; browsed through tapes and CDs, and visited instrument shops to finger frets as old as the music itself.

"Go on, tell me what you think 'at Gibson's worth."

"It's worth plenty, all right. It's a pre-war?"

"Sure is. Think I'm gonna carve my wife's name on it somewheres."

Even Beethoven's Fifth on banjos

Like other religions, bluegrass has two sects, orthodox and reformed. Since the early '70s, innovators have played Bob Dylan, the Beatles, original jazz, soul, Motown, even Beethoven's Fifth on banjos and their ilk. Called "newgrass," or "progressive," this hybrid draws a younger crowd to urban and college festivals. But at Summersville, fans remain loyal to the music that raised them. And the musicians who spread the genre in the 1950s—the Osborne Brothers, the Stanley Brothers and the Clinch Mountain Boys, Jim & Jesse and the Virginia Boys, and others—still make the festival rounds. Thanks to the keen business sense of two retired educators, all of them now come to Summersville in late June.

Across a sweep of acreage on the farm where she was born, Eunice Kitchen and her husband, Edgar, built the Summersville Music Campground. Before their retirement, Eunice was a teacher who began in a one-room schoolhouse, Edgar an administrator and a part-time fiddler. Twelve years ago they decided it would be fun to hear bluegrass on the farm.

"We thought we'd just put out a few fliers and we'd have 10,000 people roll in here," Edgar recalled. "We spent $1,000 for a tent. I built the stage, and we put up $1,200 for the sound system. Labor Day weekend came and the festival drew 98 adults, one boy and a dog."

But the Kitchens soon learned how to cultivate bluegrass. When the phone rings on festival weekend, it's often a promoter asking for advice. Hire the best bands you can afford, the couple says. Put out plenty of publicity. And keep it clean. Alcohol and drug use have closed some festivals, and the Kitchens will not tolerate fans who would rather be high than lonesome. "It takes a long time to build up a reputation," Edgar said, "but you can lose it in an instant."

Drug- and alcohol-free, the Summersville festival has grown into one of the country's largest rural bluegrass gatherings. Now the humble couple books all the

The Nature Conservancy calls them "The Last Great Places." We believe they're just the beginning.

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Because we too believe that the quality of life for future generations depends on our ability to work cooperatively today. And projects like The Last Great Places are the start.

Miller

To learn more about The Nature Conservancy as well as what Miller is doing to support their efforts call 1(800)628-6860

"Hobo Bob" Larkin sits behind heavily labeled van waiting for his friends to "finish cooking corn bread and beans." A retired computer technician who was formally trained in music as a child, he takes part in some 40 festivals a year, "as much for the company as the music."

bands, handles all the publicity, hires 100 locals for security and logistics, and draws close to 10,000 fans paying up to $70 each for a four-day ticket. Seems there's gold in that there music.

"Bands call from all over now, almost begging to be on the program," Eunice beamed.

Since the 1970s bluegrass has become an American musical export. With annual festivals held in England, Estonia, Slovakia, Sweden, Scotland, Canada, Mexico, Germany and Japan, fans don't have to come to Summersville to pick. But sometimes Muhammad must go to the mountain music. Hajime Onuma took time off from his business in Osaka to come to Summersville just to see his idols, Monroe and the Country Gentlemen. Though he knows little English, Onuma, a bass player in one of Japan's many bluegrass bands, sings along with the classics like "Salty Dog Blues." Harald Hougaard came all the way from Oslo, where he records bluegrass and plays it in coffeehouses. The words may lose something in Norwegian, but who could mistake the banjo's twang in Hougaard's "C-moll [C-minor] Breakdown."

On Thursday evening, while the smell of barbecue sauce wafted over the campground, my lightning fingers itched to join in. If there were pickers from other continents, perhaps I could join in a session with another 'billy from the 'burbs. I lugged my banjo past faint fiddle duos seated on picnic tables and solo banjo players on fenders.

Bluegrass brings the sweet and sour from the most eclectic sources. Between two RVs, I stopped to listen. A brawny, taciturn man, who might have carried a fiddle case for some sinister purpose, fingered his delicate instrument with stubby paws. A string-bean fella last seen in a Norman Rockwell painting gave his banjo a truthful twang. On guitar was a crew-cut teen who looked to be on Army leave. With a mandolin player who looked like everybody's favorite uncle, this band needed no help from me. But as they crooned the murder ballad "Long Black Veil," up strolled a weathered, middle-aged woman carting a bass. She planted one end of it in the ground and began thumping along. The fiddler gestured at me to join in. I'd only show them up, I figured. I didn't pick, but I grinned and listened. "She walks these hills in a long black veil / Visits my grave while the night winds wail / Nobody knows, nobody sees, nobody cares but me."

On past midnight the jamming continued. The Kitchens used to impose quiet at 1 A.M., but now there are no limits, and few complaints. "You get to the point where if you're trying to go to sleep and you don't hear any music, you lie awake," one woman told me the next morning while brewing coffee.

On Friday morning, as better-known bands took the stage, the democracy of bluegrass broke down barriers. Rock musicians travel with security guards. Classical musicians keep a dignified distance. But at Summersville, nothing but microphone wires and a U-Haul trailer separated backstage from the audience. To meet a bluegrass legend, you just stepped around the U-Haul and waited for the end of the set. Under the trees, musicians traded stories, signed autographs and companionably greeted one another after a few months on separate roads.

Bluegrass chumminess dates to the music's radio days. These are musicians who came into living rooms on tinny radios back in the dark ages before TV. Throughout the 1940s and early '50s, clear channel sta-

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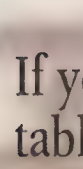

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Glen Mason, left, with Bill Taylor, sees bluegrass as the "jazz of country music" because of improvisation.

Silly bottle lanterns foster "Y'all come and join in" spirit of late jam sessions, which can go on all night.

tions like WSM in Nashville and WWVA in Wheeling, West Virginia, beamed bluegrass into every hollow east of the Mississippi. Floyd Freeman heard it in New Brunswick, Canada. Fifty years later he's still listening, despite the gibes of his friends. "There was a time I was ashamed to admit I liked bluegrass," said the retired car dealer. "So many people made fun of it. But now I've come out of the closet." And Edgar Kitchen remembered the days of fiddling not with his bow but with the knobs of his Atwater Kent radio: "You used to spend a lot of time with the knobs trying to get rid of the static," recalls Eunice.

But these days you have to fiddle with your digital tuner at just the right time of week to hear bluegrass on the air. Fearing that it smacks of hayseeds and hog farms, contemporary country stations avoid bluegrass like a dissonant chord, fueling a lingering feud. Presidents quote country music. Nashville penetrates these hollows with its own cable network, but bluegrass remains a cottage industry for all but its headliners. For hundreds of upstart bands, the best business advice is the title of one bluegrass album, "Don't Quit Your Day Job."

"It's all Nashville and money," said Dick Webb, banjo player for the Bluegrass Strangers, an Ohio-based band that tours on weekends and works other jobs during the week. "If Nashville woke up this morning and said bluegrass is the thing to listen to, we'd all be rich."

Bluegrass and country share the same roots—British ballads and fiddle tunes whittled by the hard life of the Appalachians. The blues, and especially a black guitarist and fiddler named Arnold Schultz, influenced Monroe. When Monroe was shaping his music, it was considered as country as Roy Acuff or Minnie Pearl. But the musical waters were parted by "the King" himself. Elvis Presley's first record included a rockabilly version of Monroe's "Blue Moon of Kentucky." But as Elvis and rock replaced country on the charts, country musicians were faced with a choice—get electrified or get other work. Some plugged in their guitars, then added horns, pianos and rock tempos to create the Nashville sound. Others deepened their country roots, started calling their music "bluegrass" and went hungry. By the late '50s, even Monroe was spending more time on his farm, unable to fill his performance schedule.

Only the folk music boom of the early '60s revived the genre. Riding the folk wave and their appearances on TV's *The Beverly Hillbillies*, Flatt & Scruggs played the Newport Folk Festival and then Carnegie Hall. The first bluegrass festival, held in 1965, led the way to bigger and longer gatherings and to concerts on college campuses in the '70s, and bluegrass became both music and commodity.

Kentucky sisters Elzie Smith and Gladus Thacker hug Monroe; they drove six hours just to hear his music.

So when bluegrass musicians speak of tradition, they speak as true believers. Despite innovation, the music's road maps remain: hard-driving tempos but a disdain for amplification, a brisk mandolin strum as percussion, vocal harmony featuring rock-bottom bass and nasal soprano, and instrumental solos that embed concertos in each tune. Trains and trucks, mines and mills, breakdowns and breakups fill the lyrics. So do the consolations of gospel. "Just to hear Gabriel's trumpet sound / When I wake up to sleep no more."

If a band strays too far from its roots, the close quarters of a festival seem suddenly open to the changing world outside. But when a band sticks to the basics, then the circle remains unbroken. For a few verses, an endangered way of life—freight engines, mountain roads, and families that played together—is restored.

Given the weight of tradition, another ritual at some festivals is déjà vu-grass. On Friday evening, after 20 bands had come and gone, I got the creeping sensation that I'd heard this song and this band before. At least the pattern seemed familiar: some poor lonesome picker left the hills for the big city (fiddle break), his sweetheart stepped out on him (*wah-wah* from the Dobro), his dear old mother was waiting for him back at his home sweet home (let that mandolin in here), but they up and closed the mine and left him with them Blue Ridge Mountain blues (lemme hear that banjo). While the Kitchens sat with the picknickers eating a chicken dinner like any other fans, I left the stage area to fetch my banjo for some duelin'.

Off behind the stage, I found a small session and shouldered my five-string. In bluegrass, timing is of the essence. When you know only six songs, you have to wait and wait until someone mentions one of them. "That lick sounded something like 'Foggy Mountain Breakdown.'" That was my cue. Racing into those foggy mountains, I picked furiously, never looking up to see whether these, like most bluegrass fans, were sick of the classic. A fiddler joined in, more out of pity than harmony. But on my second run, my banjo broke down—something to do with a faulty tune-up. Sputtering, I managed to finish the song without pulling to the side. Bluegrass pickers are universally polite to amateurs. The fiddler invited me to play another. But no matter how small the stage, a suburb-billy should know when to exit stage left. I played a shy backup to a few other songs and went wandering.

As I was packing my banjo, a wave of applause came from the audience. For a new band, perhaps. But knowing how word travels at a festival, the ovation might have been for my decision to keep my banjo deep in the trunk of my car. No matter. Now I could say I had earned an ovation at Summersville.

Because bluegrass is younger than its elder statesmen, the Kitchens had no trouble harvesting nearly

Easing back in his recliner, bluegrass veteran Ralph Stanley plucks "Cluck Old Hen," a traditional tune, for his son Ralph II and other members of his band. Just doing festivals, they put more than 70,000 miles a year on the bus.

every founding father of bluegrass. By Friday evening the legends came out. The dour-faced fiddler Kenny Baker, who *was* bluegrass fiddling in his years with Monroe, played with "Uncle Josh" Graves, pioneer of the bluegrass Dobro with Flatt & Scruggs. Later came "Chubby" Wise. At 77, Wise looked like Santa Claus in suspenders with a bow as he played the locomotive fiddle tune "Orange Blossom Special," which he cowrote so long ago that many fans assume it's traditional. Then there was Ralph Stanley singing gospel a cappella, his scratchy tenor resounding like a fine oak sanded against the grain. And finally, Saturday afternoon.

Imagine attending a Mostly Mozart festival and having Mozart show up. Imagine going to a blues festival where W. C. Handy sat in. At 1 P.M. on Saturday, after a handsomely suited band bearing the auspicious name "The Blue Grass Boys" stepped onstage, the father of bluegrass joined them.

His voice was not as high as in the 1930s when he played at churches and schoolhouses in these parts. But Monroe's mandolin galloped through the instrumentals and floated above his song about the uncle who inspired him: "Late in the evenin' about sundown / High on a hill up above the town / Uncle Pen played the fiddle, you could hear it ring / You could hear it talk, you could hear it sing."

"Bluegrass music will never die!" Monroe shouted above the applause. Backstage he told this awed suburb-billy about the music's enduring quality. "Well now, I believe it'll last for a long time," he said of his creation. "It's got a feeling in it, the feeling of the Methodist and Baptist roots. People know bluegrass is made to satisfy them. It's brought more people together than any other music in the world. And will you put in there that I just want to say hello to all my fans."

Mozart didn't sign many autographs, but on a picnic table behind the stage, Monroe signed pictures, dollar bills and mandolins, while women sat beside him for photographs, placed children in his lap and asked how he was feeling. For more than an hour he made fans feel they owned a piece of him. Then, after an evening set, Monroe's bus pulled out. Having survived open heart surgery, he has slowed his pace. Instead of doing 150 festivals a year, he now does only 100. "Every place I've played has asked me to come back next year," he told me.

The deeper you get into bluegrass, the more it seems to rely on faith and good deeds. Good deeds were everywhere, as earnest as the crowd of men gathered Saturday evening around the hood of a stubborn old pickup, helping to get it running, as hearty as the homemade soup a total stranger handed me as I passed her RV. Said Hobo Bob: "When you come to a bluegrass festival, there isn't anyone you don't know." And faith spilled onstage in the Sunday morning gospel session. Bluegrass gospel is a decidedly New Testament version. There are a few songs about Moses and Ezekiel, but most are about salvation, sin and Jesus, as if a fire-and-brimstone preacher suddenly whipped out his five-string and preached to a call-and-response choir. Washed in the Blood of the Lamb, the gospel continued until noon.

Bluegrass fans talk of a "golden era," the early '50s when Monroe, Flatt & Scruggs and the Stanley Brothers were playing all over the hills and the airwaves. But this may be a second golden era. Nearly all of the

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bluegrass vanguard is still performing. Women are up there onstage, no longer as backup singers on bass but as headliners like 21-year-old fiddler Alison Krauss, who drew more applause at Summersville than anyone except "the father" himself. And innovators are taking the music in new directions.

The International Bluegrass Music Museum in Owensboro, Kentucky, not far from where Bill Monroe was born, preserves the heritage, but some worry that when its founders pass on, bluegrass will lose its anchor. "Once guys like us, Jim & Jesse, Monroe and Stanley are gone, everyone will see great changes in bluegrass," says Bobby Osborne, mandolin player with the Osborne Brothers. "It'll probably still be bluegrass, but it won't be as traditional as we've tried to keep it."

But for now the sound of religion, home and hearth, harmonized with twang and truth and fiddled up to near freight-train speed, is being passed along to still another generation, young musicians like 14-year-old Ralph Stanley II playing guitar in his old man's band.

Following a final afternoon, the Summersville festival drew to a close Sunday evening.

"You gonna be at Frontier Ranch next month?"

"Sure hope so."

"Guess we'll be seein' you, then."

Then the diaspora began as RVs lumbered out into the world where seldom is heard any word about the music. Fans headed home. Bands were bound for festivals in Carrollton, Georgia; Martinsville, Indiana; Renfro Valley, Kentucky . . . And I was off to take some banjo lessons.

To foot-tapping tunes on tape decks, a stream of red taillights did some hard drivin' down the roads that led from Summersville. The faithful knew they would meet again. Near some foggy mountain they would set up camp, unpack instruments and gather around in the name of bluegrass—still as high as ever, but somehow not so lonesome.

Summersville organizers Eunice and Edgar Kitchen have put in many long hours on their festival since they created it 12 years ago. The program always includes a Sunday morning session of old-style gospel music.

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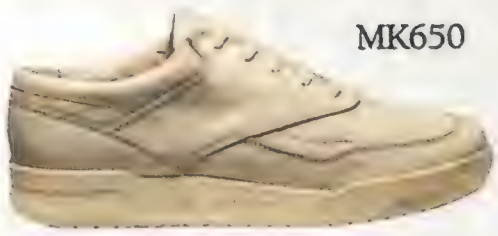

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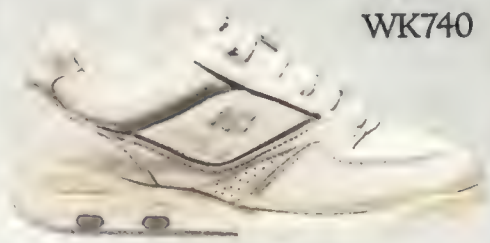

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Created as tribute to the working man, *Steelworker* (1990) towers over the hum of activity in Jimenez's studio.

The 13-foot-high statue caused a furor three years ago when it was exhibited at a Pittsburgh arts festival.

By Chiori Santiago

Luis Jimenez's outdoor sculptures slow traffic down

He began his apprenticeship at age 6, helping his dad turn out neon signs in El Paso; now he's creating a new generation of public artworks

Photographs by Eduardo Fuss

Luis Jimenez is tooling down the main drag of El Paso, Texas, acting as tour guide to his past. We're on our way to San Jacinto Plaza in the old downtown, where he plans to install one of his fanciful sculptures later this year. But all he can think of at the moment are the signs in front of the 7-Elevens and furniture showrooms and Chinese eateries that line Mesa Street. The signs are ubiquitous plastic boxes, or worse, garish computerized light screens that elbow their way into one's field of vision like an ill-mannered tourist. To Jimenez, that's what they represent—interlopers in a bygone world of elegance and artistry.

Neon signs with lots of punch

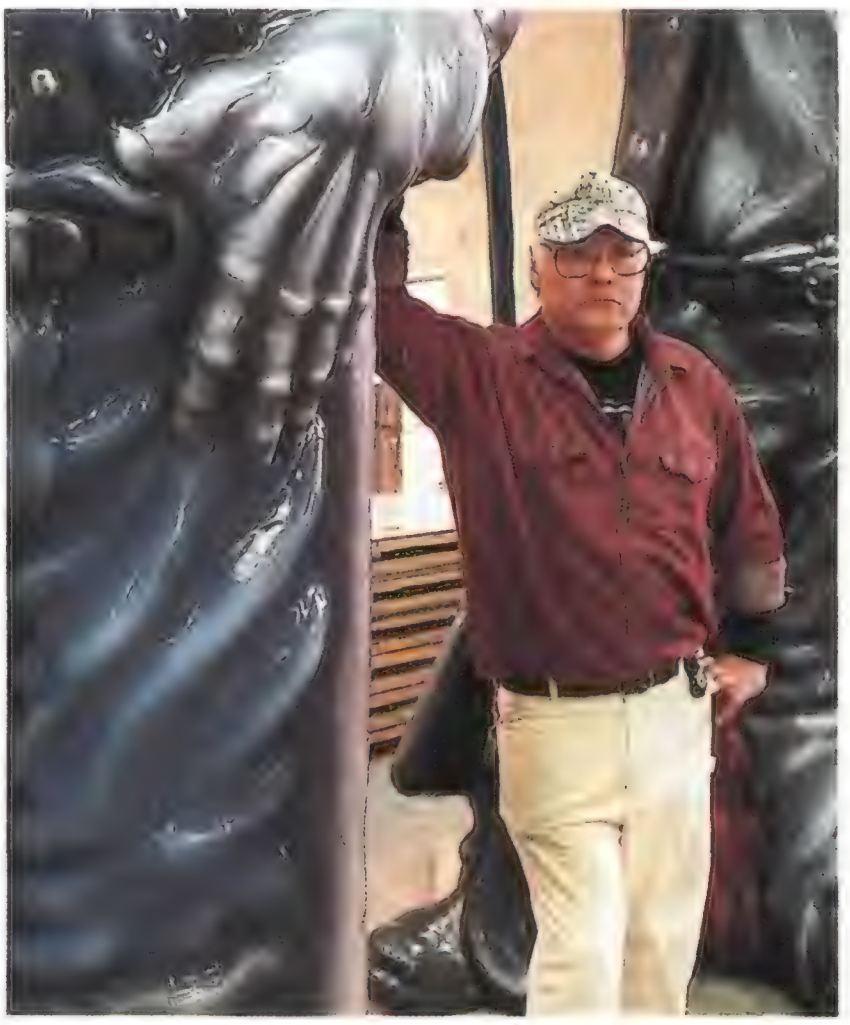
"My father made signs that were individual works of great imagination," Jimenez says, navigating traffic past a lot filled with new cars. "Right here was the Fiesta Drive-In. It had a neon sign that he made of a woman dancing in a flamenco skirt in front of two guys sitting on the ground wearing sombreros. With each flash of light in the circuit, her dress would appear to go higher and higher, until at the end the guys' hats would fly up in the air." He chuckles. "That was typical of my dad's signs—lots of action and color. He gave El Paso a personality in the 1950s and '60s, and now it's all gone. When the plastic boxes came in, they killed neon. He couldn't compete pricewise."

The drive-in's fiesta dancer may be in marquee heaven, but the legacy of his father's neon sign shop lives on in Luis Jimenez's art. When he was enlisted by the business at age 6, Jimenez never suspected it was the start of an apprenticeship in public sculpture. Today, Jimenez's own *Fiesta Dancers*, a nine-foot-high fiberglass tribute to the passionate folkloric *jarabe* dance of Mexico, is a kind of Technicolor postcard, a greeting to travelers from Tijuana as they cross the border into San Diego. His muscular, highly colored, larger-than-life figures occupy other equally prominent niches on U.S. terrain. The hunched shoulders of his *Sodbuster* follow a plow down the main street of Fargo, North Dakota; a bronze coyote howls mournfully in the sculpture garden of the Albuquerque Museum; and his fearless *Vaquero* clings to a wild bronco in front of the Smithsonian's National Museum of American Art in Washington, D.C. (p. 92). Other works by Jimenez are currently on view in a group exhibition, "La Frontera/The Border," which is at the downtown branch of the Museum of Contemporary Art in San Diego from March 5 through May 22.

"To a certain extent, my outdoor pieces are performing the same function as a sign," Jimenez muses. "They're giving the place a sense of identity. Certainly, when they put up the *Vaquero*, they were proclaiming: 'Hey, we're in an old Greek Revival building, but what we're showing inside is really a lot more adventurous.' "

Jimenez's pieces are signposts marking elements of 20th-century culture. But his art-historical roots go far deeper. "He's a major contemporary sculptor whose works reflect the idealized imagery of Michelanglo, the Greeks and the Romans," says Ellen Landis, who is assembling a major retrospective of Jimenez's work to open next year at the Albuquerque Museum. "Yet his pieces are exceptionally relevant to current social problems; Luis' images are so universal it's easy for the populace to relate to them."

Certainly, Jimenez's pieces make reference to those stalwarts of the sculptural tradition: the equestrian statue, the Pietà, the figurative monument. Except, rather than using the traditional materials of marble and bronze, he molds his high-energy tableaus in fiberglass, the material of boat hulls and hot rods, painted in a riotous car-buff palette of Mexicali red, school-bus yellow and Capri blue. And Jimenez chooses to raise unconventional subjects to the level of famous generals and laureled men of letters. He immortalizes the overlooked and long forgotten: the immigrants who nightly wade the Rio Grande toward its northern bank; the Mexican ranch hands who were the West's original cowboys; or the alligators that once drew scores of Sunday visitors to El Paso's town square.



Jimenez is dwarfed by two castings of *Steelworker*; he makes up to six versions of a commissioned work.

A body of fiberglass work

Jimenez spray-paints *Fiesta Dancers* outside his old apple-shed workshop, where he does industrial tasks.

Barfly (Statue of Liberty) in artist's living room in Hondo, New Mexico, is typical of his '60s works.

The town square is, in fact, our next stop, and as Jimenez walks toward it, he's the picture of a self-made man, tall and energetic at 52. A multicolored welder's cap covers his thick gray hair, and his sartorial taste declares his status as a working man; he favors paint-stained jeans and T-shirts. But as we near our destination he is a boy once again, not much bigger than his 5-year-old son, Orion, who tags along. He remembers this place as La Plaza de los Lagartos—Alligator Plaza—the starting point for weekend jaunts with his grandmother. After looking at the thrilling knurled beasts, they'd head across the border to visit the bird markets and vegetable stands of Mexico.

The walkway that joins El Paso with its Mexican neighbor, Juarez, is just 12 blocks or so from here, and in terms of culture and commerce this is where the border disappears. Old men rest in the shade, their creased brown faces hidden by straw brims; passers-by wave at friends with a shout of "*¿Qué pasa, hombre?*" Two women with the long black braids and patterned skirts worn by Guatemalan mountain people mull the contents of their plastic shopping bags. There's a multitude of life in the square, but no alligators. Today, only a chunky blue-tiled fountain marks the scene where the animals lived; it is said that a local dentist used to sneak into the pond at midnight to clean the beasts' teeth. Eventually, they were moved to a zoo, perhaps more for their own safety than the public's.

Jimenez, as he does in most of his public art, intends to resurrect history by bringing back the alligators, this time as a playful fountain built of frolicking fiberglass beasts. The commission is something of an epiph-

At right, guided by a full-size rendering on the wall, he applies clay to the body of an alligator for fountain he is creating for El Paso's town square, a monument to real alligators that once lived there.

any for Jimenez, his first opportunity to stamp his esthetic on the hometown that holds his bittersweet past. "It was a tough city to grow up in if you were Mexican, not unlike being in South Africa," he says. "The majority of the population was Mexican or Chicano, but their traditions were slighted. I have very mixed feelings about El Paso."

Jimenez's grandmother and father crossed the border into El Paso's "Segundo Barrio" illegally in 1924; his father didn't obtain citizenship until after Jimenez was born. Luis sr. was an ambitious man, with a street fighter's tenaciousness that would enable him to eventually own the sign shop at which he'd started as an employee. He was also an artist frustrated by poverty—he'd won a national art contest in the 1930s, but Depression-era cutbacks erased the expected prize scholarship. Consequently, he maintained unrelentingly high standards for his sons. Jimenez mentions this as he pulls his car in front of the abandoned Crystal Cleaners on Wyoming Street. We stare up at a huge white polar bear that still stands guard overhead, and Jimenez remembers his 6-year-old self pressed into service to slap wet concrete onto the animal's metal frame. The task seemed impossibly huge, but the boy was less frightened by the size of the job than by his father's demands.

There were rewards, too: journeys to Mexico to see the vibrant art in its museums, so different from dull El Paso, where his favorite artworks were the government-sponsored 1930s murals in the federal courthouse and elsewhere. These sweeping, idealized vistas of westward development would influence Jimenez in a way that he wouldn't understand until much later. When he entered college he would defy his father and switch majors from architecture to art, a move that meant the younger Jimenez had to pay his own tuition. Jimenez's mother, Alicia, lives just a few blocks from Crystal Cleaners, not far from where Luis grew up. We step in. She greets her son with a kiss, admonishes him for his tattered clothing, shoos her Chihuahua out of the way and proudly points out the early Jimenez works scattered around the floor of the entryway. They are abstract, Henry Moore-ish forms carved of oak and mesquite, whatever the young artist could pick up around the neighborhood. One of them demonstrates his budding penchant for brazenness. On a conventional, stylized carving of a Madonna and Child, he's imposed a pair of pendant breasts.

Alicia Jimenez sighs as she remembers her son's decision not to follow his father into the sign business. "You see how he looks now, with his pants falling down and his shirt untucked? He used to look so nice. Wait, I'll show you." She disappears into a bedroom, emerging a moment later clutching a fading snapshot. "See? This is just after he went to New York."

In the picture is Jimenez at 26, posed before a wall full of drawings. He wears a dark suit and tie, and his mouth is a straight line in a square, determined face. After the unequal turf of El Paso, "New York City was a totally level playing field," Jimenez recalls. "Being

Chiori Santiago lives in Berkeley, California, and writes about people in the arts. She is working on a book about Caribbean-American musicians.

Howl (1977), a lithograph, was later followed by fiberglass and bronze sculptures of the same subject.

Border Crossing was study for a sculpture Jimenez dedicated to his father, who crossed over in 1924.

Chicano didn't mean much; I became a Latino." Away from the racial limitations of Texas, he could develop an individual voice and yet see himself as part of a larger national culture. It was a heady time; he apprenticed himself to sculptor Seymour Lipton, worked for the Head Start program and organized street dances for the city's Youth Board. He didn't have much money, but he could afford a room in SoHo where entertainment was free: a number of musicians lived nearby, and the sounds of all-night jam sessions often wafted up and down the street.

In the meantime, Jimenez was experimenting with three-dimensional form. "Perhaps because of the experience of working in the sign shop, I realized early on that I wanted to do it all—paint, draw, work with wood, metal, clay. Sculpture allows you to do that." His images were those of 1960s pop culture, chosen for their familiarity and shock value. He made buxom blondes like *California Chick*, demolition derby cars, overweight sun worshipers. They were images of a society in the thrall of machinery, with its humanity out of control: his best-known early works include *American Dream* (1967), which depicts a Volkswagen making love to a woman (it is owned by the Hirshhorn Museum & Sculpture Garden), and *Barfly* (1969), portraying the Statue of Liberty as a lushly degenerate beer drinker. The pieces were thin and flimsy—he was pinching pennies and skimping on material, mixing resins, aluminum powder and pigments rather than investing in expensive commercial finishes—but the sculpture was developing an energy that was hard to ignore.

The visual language he grew up with

"Using fiberglass was a logical decision," he comments. "The material carries the same baggage as the images. It's not a 'high art' material. People have asked me if I choose garish colors for their shock value. But I like those colors. It has to do with personal taste, and that varies from culture to culture." Indeed, a good deal of Jimenez's visual language is pure Segundo Barrio, with references to *cholos*' tattoos, plaster saints, black velvet paintings of fantastic beasts and wanton women, ceramic ashtrays in the shape of cacti. "Yeah, it's all that stuff," he says. "My working-class roots have a lot to do with it; I want to create a popular art that ordinary people can relate to as well as people who have degrees in art. That doesn't mean it has to be watered down. My philosophy is to create a multilayered piece, like Hemingway's *Old Man and the Sea.* The first time I read it, it was an exciting adventure story about fishing. The last time, I was deeply moved."

Getting his first show required a Segundo Barrio chutzpah, too. At the end of one long afternoon in 1969, after he'd been refused by every exhibit space

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National Museum of American Art

Flamboyant *Vaquero* outside National Museum of American Art celebrates Mexican roots of the cowboy.

he'd visited, he pulled his truck in front of the Leo Castelli Gallery where director Ivan Karp, he'd heard, was sympathetic to emerging artists. Finding no one in the empty space, Jimenez decided to carry the three sculptures he had in the truck inside, as if he were selling nothing more than Fuller brushes. When Karp finally emerged from a back room, he was first astounded by the stranger's nerve, then taken by the work. He couldn't show it, he said, but perhaps the Graham Gallery would. The folks at Graham Gallery did, although they weren't confident about selling it. To their surprise, the work not only attracted attention, but artist and art patron Alfonso Ossorio agreed to purchase enough of it to enable the gallery to underwrite Jimenez's first solo show. "I was just very lucky; things happened pretty quickly after that," he says. Even Hilton Kramer, at that time the *New York Times*' notoriously grumpy critic, gave his second show at Graham high marks. Then, just as he was riding the crest of Eastern acceptance, Jimenez decided it was time to move on.

"I did all right in New York but I felt rooted in the Southwest," he says. "I missed the connection to the land." So, in 1972 he drove his truck west to Roswell, New Mexico, where collector Donald Anderson had agreed to set him up in a studio and fund production of his first two large-scale sculptures. Based on the old government murals that had impressed him as a boy, they are glossy, high-voltage interpretations of the mythic West. They pay tribute to Indian buffalo hunters, Spanish cowboys and longhorn steers—essentially, species headed for extinction—in unsentimental cartoon colors that convey their place in a pantheon of romantic heroes.

Rodeo, bronco, corral—*all Spanish words*

In 1979 Jimenez won his first public commission, which was to be a cast of *Vaquero* for Houston's Moody Park. "I wanted to do something about Texas, and the early studies for that piece were straight cowboys, a fairly obvious image," he says. "As I got more involved, and because I do have a social agenda for the work, I realized that cowboys had come out of the Mexican experience." He ticks off evidence in the archaeology of language: *rodeo, bronco* and *corral* are all Spanish words; *vaquero,* of course, means "cowboy."

"I realized that we just got left out of history. Making *Vaquero* acknowledges the contribution Mexicans and Mexican-Americans made toward popular American imagery."

On another level, the piece is a comment on equestrian sculpture. "There's a whole tradition around the position of the horse's legs," Jimenez explains. "If all four feet are down, the person died in his sleep. One front foot up means he died in battle. Well, two back feet in the air didn't mean anything. So putting the vaquero on a bucking bronco was a way of breaking with tradition."

It's Jimenez's lusty attack on hidebound themes that invigorates his work and makes it so universally accessible. The corollary of a democratic art, however, is that the public has an equal right to complain about it. When *Vaquero* was temporarily installed in Scottsdale, Arizona, gallery owners deemed it inappropriate and tried to have it removed. "What [they] seem to want is . . . something inoffensive, generic, forgettable . . . Muzak in metal," shot back Richard Nilsen, columnist for the *Arizona Republic.* Then, after the piece went into Moody Park, says Jimenez, some public officials criticized the gun-toting figure as an advocate of violence. "You wouldn't think of taking the gun away

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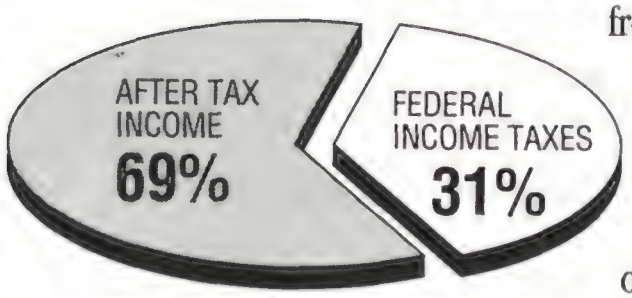

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Two of the artist's favorite things: his Appaloosa, Blackjack, and a sign he once helped his father make.

from a statue of Robert E. Lee, but a gun in the hand of a Mexican becomes dangerous."

There have been other flaps. In 1983, residents of Albuquerque's Old Town neighborhood protested the commission of *Southwest Pieta*, Jimenez's interpretation of the classic Romeo-and-Juliet tragedy of Aztec lovers Popocatepetl and Princess Ixtaccihuatl. But some misunderstood it."Critics, who say it depicts the aftermath of a rape of an Indian maiden by a Spanish conquistador, say it is offensive to those of Spanish heritage," reported the *Albuquerque Tribune*. Chicano residents of the city's Martineztown, on the other hand, fought hard to have the sculpture installed there, which was done in 1988. And in Pittsburgh, says Jimenez with some relish, a local politician denounced *Steelworker* (pp. 86, 87) as an "ugly guy" as it was being put up outdoors at a 1990 festival. "But after it was installed, people came to lay flowers at the base. It was an image that hit a raw nerve."

"There's a lot of pathos and joy in his work, and when the two come together you have mixed emotions," comments Ellen Landis. "That can be hard for people."

The confrontational quality of his art simply reproduces the reality Jimenez sees around him—which isn't always comfortable. At home in Hondo, New Mexico, where he now lives in rural solitude in a converted WPA-era schoolhouse with his wife, Susie, and their three children, he is surrounded by the continuous drama of life grappling with death. Peacocks in the yard sometimes get attacked by the dog. During early-morning walks, the family may stop to examine the remains of a road kill or to watch a group of ravens chase a marauding hawk from their aerial territory. Scattered among the art at his home are the skulls of small creatures, the shards of past civilizations and other things he has picked up. The reverberations find their way into Jimenez's work as what writer Annette DiMeo Carlozzi calls "a dense encyclopedia of iconographic detail."

"I guess most of my work ends up being about predator-prey relationships," Jimenez says, "with Man just one more predator in the chain." He falls silent during the five-minute commute from his home on one side of Hondo to his workshop, in an old apple-processing warehouse, on the other. "Of course, the animals may be getting back at us," he says suddenly. "Oscar had to get his car repaired four times this year after deer jumped in front of him after dark."

"Oscar" is Oscar Macias, one of a battery of assistants who help Jimenez turn out his long list of commissions. As we walk toward the shop, Spanish love songs float out to greet us. "*Enamorado-o-o-o,*" sighs a crooner, full blast, over the radio. Inside, the place bustles. Macias has the nose of a tiny mustang—a maquette for a proposed 30-foot-high sculpture for the new international airport in Denver—clamped in a vise; he smooths its snout with strokes of a chisel. His brother Jose Luis works on a sculpture base, while on a loading dock outside Jesus Medina reinforces the mold for another casting of *Fiesta Dancers*. A finished casting of the piece stands nearby, the man tall and proud, his buxom partner confronting him with a loose-lipped grin, their unpainted alabaster-white forms rising toward the sun.

Pressing each fistful of clay into place

For each commissioned piece, Jimenez reserves the right to make five castings for his own use in addition to an artist's proof. That would add up to a tremendous body of work dotted around the country, except the process is prohibitively slow. It calls for construction of a steel armature, over which a clay form takes shape. Jimenez insists on pressing each fistful of clay into place himself. He tried having assistants do some of the basic work but found it impossible for others to duplicate the imprint of the artist's hands. "I ended up taking off most of the clay that they put on," he says.

Fiberglass is shaped over the clay form to make a master mold used to cast each sculpture. For each casting, pieces of fiberglass are applied in layers to the inside of the mold, building up each section of sculpture. After it's released from the mold and sanded, Jimenez goes to work with a spray gun, applying layers of acrylic urethane ("the same finish used on jet aircraft," he says) to give his pieces the luster of a low-rider fender.

With the individual attention involved, it's not surprising that his commissioners often wait embarrassingly long stretches for his public pieces. The alligators for El Paso's town square, for example, pose half-finished in clay in his studio right now, several years overdue. The setbacks may be legitimate—Jimenez underwent four major operations last year to deal with continuing problems from a childhood eye injury—but that doesn't make some clients less impatient. One of them threatened to fine him $500 a day when a project went overtime. "But I have to do it right," Jimenez says. "Once they understand that they're getting a one-of-a-kind piece, they back off. It's not like pulling a print out of a drawer."

Besides, there's the matter of artistic impulse. When it comes right down to it, "an artist doesn't want to be in the same position as a sign painter, where you're just doing manual labor," he says. "To make it fun, you've got to get near the edge, you've got to get the adrenaline going, you've got to push it to the point where you're going to lose it, because that's what makes it exciting. Like those alligators; I've changed them so radically from the original drawing by now that I don't have anything to go by anymore. I've just got to make them work."

Perhaps tonight Jimenez will spend some endless, painful hours pacing around the sculpture that towers over him, threatening to engulf him. He'll decide where to press the clay, how to wrestle his demons to the ground. For now, he locks up the apple shed at sundown and drives home, where his Appaloosa waits to be fed, where his children will clamber onto his lap, where he'll take in some of the life that he'll breathe into his work tomorrow. Behind him, the figures of *Fiesta Dancers* cavort on the loading dock in Brobdingnagian splendor, surprising the midnight drivers along Highway 70.

Like a ghostly apparition from an old WPA mural, Jimenez's *Sodbuster* dominates the local landscape in Santa Fe. The original casting of the 24-foot-long sculpture has been in Fargo, North Dakota, since 1982.

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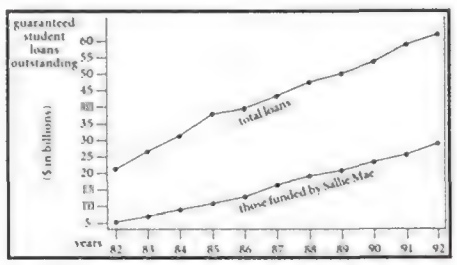

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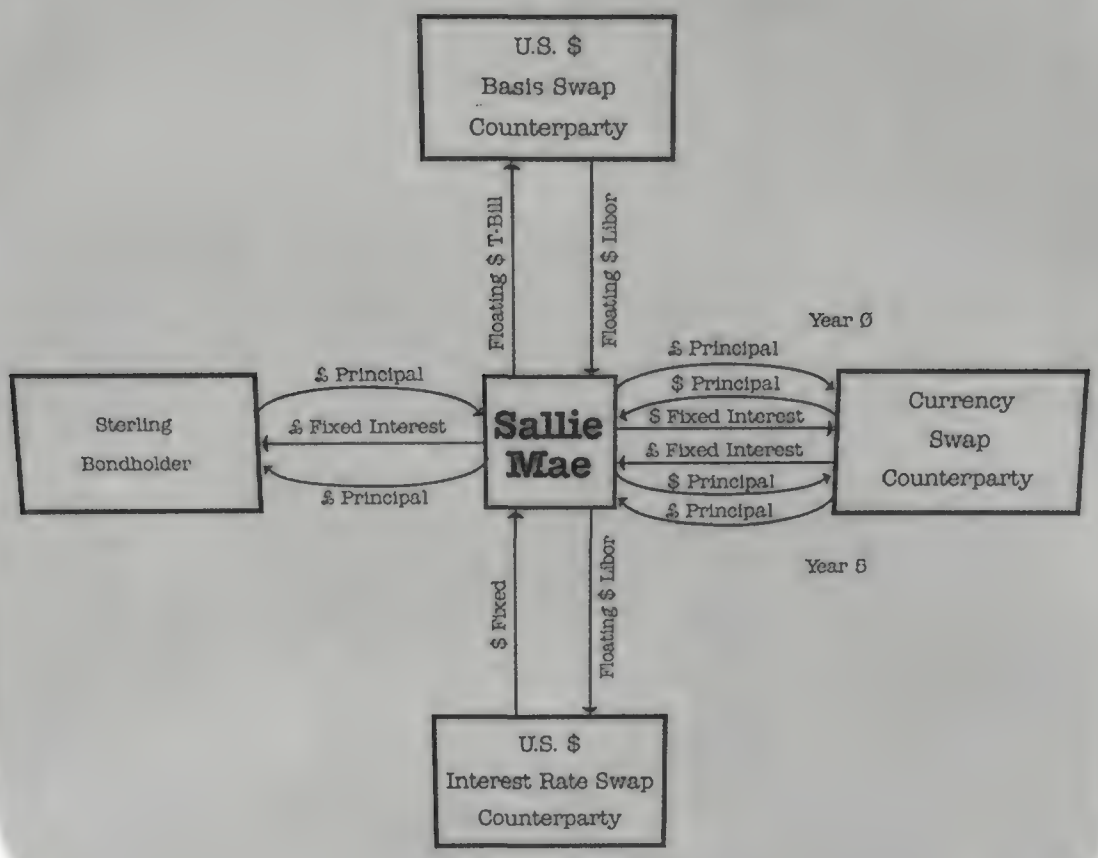

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- *$80 billion total*
- *$9 billion through Sallie Mae*

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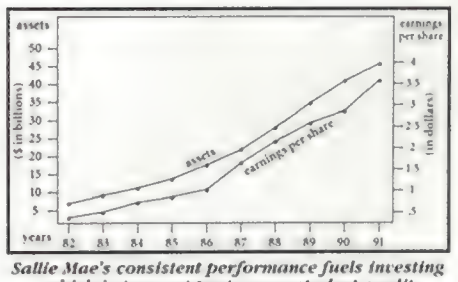

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By Richard Wolkomir

From 'woody' to 'stuffed' to shear madness, it's topiary

The gardener's ancient art is busting out all over, with a little help from privet, yew, ivy—and many a shapely metal frame

Film topiarist, Edward Scissorhands, came equipped to snip and snap greenery into sculptural trim.

Edward Scissorhands cheated.

If you saw the movie, you know Edward was an oddly pasty-faced, guileless youth whom Vincent Price assembled, Dr. Frankenstein-style, in a hilltop mansion. Edward's hands were assemblages of clacking pruning shears, which made contact with flesh and blood (or water beds) risky indeed. Still, he was a whiz at topiary: in seconds, it seemed, he could snip a humdrum shrub into a ballerina or a giant hand or dolphins leaping from a lawn.

Hollywood gulled us, of course. Edward carved a bush into a tyrannosaur in what appeared to be a flurry of flying twigs. But real topiary must grow. It can take years, even decades. Since its beginnings in the ancient world, topiary has demanded Zenlike patience. Still, Edward was on to something. His leafy sea serpent and elk pretended to be traditional "woody" topiary, rooted in the earth. Actually, they were a new breed: "stuffed" topiary, which instead of growing out of the ground is assembled, like Edward Scissorhands himself. Inevitably, there is a difference: Edward was stitched together from parts Vincent Price dug up God knows where, while the new topiary mostly grows in sphagnum moss, stuffed into a frame of steel rods or wires.

"Stuffed" Frog Footman at Longwood Gardens was made by filling a frame with sphagnum moss and adding ivy (hair), moneywort (jacket) and ajuga (pants).

I learned all this at a national topiary conference at the San Diego Zoo, cosponsored by the American Ivy Society. The conference was my first stop on an investigative tour designed to get the dirt on topiary—where it's been, why it's enjoying a sort of boomlet, and why people want to clip humble privet hedges and stately yews into crenellated castle walls and cutesy Minnie Mice in the first place.

North America turns out to be big-time topiary habitat. "People are passionate about it!" exclaims Pat Hammer, former topiary specialist at Longwood Gardens, in Kennett Square, Pennsylvania, who has recently moved to California to start her own topiary business. The city of Columbus, Ohio, has just converted a downtown park into a life-size topiary recreation of Georges Seurat's painting *A Sunday Afternoon on the Island of La Grande Jatte.* The scene, a landscape of a painting of a landscape, is composed of 47 topiary figures, 8 boats, 3 dogs and a monkey, all of yew. And topiaries on a smaller scale are scattered about the country. Horticulturists at the conference told me that topiary is any plant that can be grown in an unnatural shape, including most lawn shrubs. I jogged through a San Diego suburb, Del Mar, and sure enough, every front yard displayed cypresses and junipers snippered into balls, squares, pyramids or pompoms—the "poodle" cut.

Later, I took a topiary-spotting walk through my own Vermont town. It was popping with leafy or needly loaves of bread, cough lozenges, hard-boiled

Photographs by Chad Slattery

Shouldering a tool of his trade, George Mendonca faces world from center of Green Animals, the classic topiary garden that his father-in-law slowly created for Thomas Brayton in Portsmouth, Rhode Island.

eggs and humpy undulations straight from Hobbitdom. Beside my own door was an arborvitae I'd unwittingly snipped into a rocket nose cone: I was a topiarist, too, without knowing it. Most of us are. At the San Diego conference, Bob Hyland, director of education at San Francisco's Strybing Arboretum and Botanical Gardens, showed slides he'd taken on a random drive through the hilly city.

"This is American-style topiary, and it's remarkable how much there is," Hyland said, showing houses nestled in what looked like giant cucumbers, huge bunches of grapes, and shoe boxes on sticks. "These have all been sheared into these shapes, or maybe we should use the word 'tortured.' "

Such geometric topiaries have been around since Colonial Williamsburg. But lately the Disney theme parks, which teem with statuelike topiary, have inspired homeowners here and there to trim their front-yard hedges into privet Plutos or Donald Ducks. It is poor man's statuary. That sort of precision pruning, however, requires a great deal of patience, not a typical American trait. Thus, we now have the new "stuffed" topiary: blast-your-socks-off vegetable statues in a mere matter of hours.

Mail-order catalogs offer tabletop figures that range from pregrown potted ivy wreaths to ficus cupids with bows and arrows. Stores like Kmart sell little pottery bunnies and pussycats, and the like, that sprout into microtopiaries as you water them. Topiary businesses have sprung up across the country, from Topiaries Unlimited, in Pownal, Vermont, to O'Farrior Topiary, in Glendora, California, where customers (including Elizabeth Taylor and Olivia Newton-John) can purchase, among other figures, a mossy dancing duo—Fred O'Bear and Ginger O'Hare—preassembled and ready to go. Many topiary companies also make jumbo stuffed topiaries for malls and high-rise lobbies, and some sell stuff-it-yourself frame kits. Mia Hardcastle, whose company in Tampa, Florida, Topiary Inc., created figures for *Edward Scissorhands*, says her all-woman team of five welders ships out about 500 topiary frames a week, at prices from $5 to $5,000.

The San Diego conference inaugurated the zoo's new displays of a big-as-life botanical rhinoceros, a sun bear, a tortoise, a hummingbird and a lion, as well as assorted gorillas, flamingos and koalas—all made of stuffed frames. The show began at the entrance to the zoo, where two life-size ivy elephants faced off, trunks

Richard Wolkomir's own front-door topiary, which began as a conical celebration of solid geometry, now celebrates chaos theory.

upcurled, presumably whooshing out chlorophyll.

"Hey, check out those elephants!" a dad in shorts exclaimed, motioning his twin toddlers toward the vegetable pachyderm, his camcorder already whirring.

"He's got weeds growing out of him," one blonde matron told another, pointing to a small purple flower growing amid the ivy on one elephant's thigh like a herbaceous hickey. Zoo gardener Linda Dobbins says people usually complain about the elephants' gleaming polyresin tusks: "They call up angrily, because they think the tusks are real." But what really make the three-ton elephants look real enough to pick up peanuts are their metal skeletons.

To create the skeletons, the zoo's staff sent the dimensions of an African bull elephant to the Longwood Manufacturing Company, an industrial machine shop in Pennsylvania. Months later, via truck, they received two one-ton, welded elephant skeletons made of three-inch steel pipe covered with an epidermis of steel mesh. Zoo gardeners supervised by horticulturist Chuck Coburn snaked plastic tubing through the frames to create an automatic watering system. Then they stuffed each skeleton's hollow core, where real elephants have lungs and pancreases, with garbage bags full of cheap, lightweight foam packing. Around this, to fill out each elephant, they tamped 83 bales of sphagnum moss. In the moss, they implanted some 7,500 individual pots and plugs of ivy. Polyresin tusks and painted-pine eyes, with metal lashes, completed the illusion.

Ersatz elephants with ivy sprouting from steel frames and pop-up watering devices may be considered topiary for the Twilight Zone. Classic topiary, by contrast, began with just a little bush, perhaps yew. Year after year, a gardener gently bent its branches, snipping here, letting it grow there. One day it was a peacock.

Ships and things from Pliny the Elder

Pliny the Elder credited the art's invention to a friend of the emperor Augustus, circa A.D. 1. But in his book *Topiary*, British writer A. M. Clevely says the imperial city's gardeners were likely Greek, Syrian, Egyptian or Hebrew slaves who probably introduced topiary from other lands. In any case, it was a hit. The Romans coined the word *topia* for such an ornamental garden and *topiarius* for the gardener. According to Pliny, gardeners of his time clipped cypress "to make representations of hunting scenes, fleets of ships and imitations of real objects." Thirty years or so later, Pliny the Younger's Tuscan villa was filled with box trees cut into myriad forms, including letters, he wrote, that spelled out the "name of the gardener or his master."

During the Dark Ages, when survival took precedence over leafy obelisks and pruned puppy dogs, topiary, like book learning, managed to live on in monas-

Topiarist Pat Hammer decks out a Rabbit Herald for "Alice's Wonderland" show at Longwood Gardens.

Stunted giraffe at Green Animals lost neck in 1954 hurricane, but afterward made a gradual comeback.

teries. By 1452 topiary had become chic again. Italian architect and scholar Leon Battista Alberti (an early explorer of the rules of perspective) designed a garden for a Florentine villa with topiary "spheres, porticoes, temples, vases, apes, donkeys, oxen, a bear, giants, men and women, warriors, a witch, philosophers, Popes and cardinals." Inspired by the Italians, 15th-century French horticulturists created parterre gardens, where low hedges swirl and knot in intricate embroiderylike patterns. As Clevely notes, "by the turn of the seventeenth century the design of gardens and garments could almost be considered a single craft." This form of topiary—imposing a mathematical logic upon nature—reached its apotheosis at Versailles in the late 17th century. It spread through Europe, and as far off as the gardens of Chinese emperors.

England, on the other hand, in topiary as in everything else, had a weakness for the eccentric. Lions, dragons and other botanical beasts stalked Henry VII's Richmond Palace gardens. A 1618 British horticultural manual advised: "your gardener can frame your lesser wood to the shape of men armed in the field, ready to give battle; of swift-running grey hounds, or of well-scented and true-running hounds to chase the deer or hunt the hare."

Though Francis Bacon said he did "not like images cut out in juniper or other garden stuff: they be for children," Britons pruned on, undeterred. Essayist Joseph Addison once charged in *The Spectator* that British gardeners, "instead of honouring Nature, love to deviate from it as much as possible."

The reaction toward "natural" landscaping that set in during the 1700s was so extreme that at least one gardener planted dead trees and created artificial molehills. The urge to prune soon returned, however. England today is dotted with privet locomotives, yew lyrebirds and tunnels of hornbeam.

Topiary migrated early to America and evolved rapidly. In 1872 Massachusetts textile mogul Thomas Brayton, a no-nonsense Yankee, bought a big white-clapboard house overlooking Narragansett Bay and promptly built a train platform at the yard's edge so he could commute to his factory in Fall River. The grounds consisted of seven acres of open meadow and orchard. In 1905 he picked out an apt laborer at his cotton mill, Joseph Carreiro, an immigrant from the Azores. "I've got a summer house—I want a little flower garden and a little vegetable garden," Brayton said, and added, "do what you want."

Fertile words. Carreiro, whose grandfather and father had worked in an Azores botanical garden, took him at his word.

Infant shrubs appeared in the meadow. Over years, they grew into a garden of 59 geometric shapes and figures and 21 beasts. Some were inspired by pictures Carreiro saw in his children's schoolbooks: a giraffe, a lion, peacocks, a unicorn. A picture on a package of dates engendered a topiary camel. There was an elephant, and later a donkey—because a wealthy Providence visitor, an ardent Democrat, demanded representation for her party. The gate was guarded by a robust life-size policeman, with a leafy chest.

When Thomas Brayton's wife died in 1917, he closed the house and stayed away. Carreiro, living with

Alabama designer Lois Harrison goes nose to nose with hummingbird of feathery-leafed, tropical bromeliads.

Herbaceous birds on steel legs share grassy shore of San Diego Zoo's Flamingo Lagoon with the real thing.

his family in a cottage on the estate, kept making topiary. The novelist Mary McCarthy, a frequent visitor there, said the privet beasts were so huge that, walking into the garden, the impression "was of a sheared family of Mesozoic creatures."

McCarthy was a friend of Thomas Brayton's daughter, Alice, who used her father's lush, strange topiary garden as a sort of social lure. After Brayton died in 1939, Alice became the estate's owner, dubbing it Green Animals. The 61-year-old spinster had resolved to do what she wanted, which was to continue cutting a figure in Newport society. She offered a unique attraction: topiary garden parties.

"She'd have a bar set up at either end of the garden, so people could get a martini, wander through the topiary, get another martini, and wander back again," says Crisse MacFadyen, grounds manager at Green Animals. The place became famous. In the 1940s Jacqueline Bouvier "came out" among the Brayton topiary.

On a scorching summer afternoon, I sat in the garden talking about topiary with George Mendonca, Joseph Carreiro's son-in-law, who is 83. He came to Green Animals to help clean up after the 1938 hurricane, married one of Carreiro's daughters, and in 1945 succeeded his father-in-law, becoming a master topiarist in his own right. Mendonca is now "semi-unretired" so he can continue to help restore original detail to the topiary, which had declined—especially in 1954, when another hurricane blew through, decapitating the giraffe, lopping off a section of its 22-foot-long neck.

"My darling giraffe—I'll never live to see it grow back," Alice Brayton lamented at the time, leaning out her upstairs window.

"There's something I can do, but I don't want to, because it'll have a short neck," Mendonca told her.

She grinned wickedly.

"Don't you know Rhode Island giraffes have short necks?" she snapped.

Even a short-necked topiary giraffe is a long time forming. Mendonca showed me a bear that he was in the process of growing next to his cottage, still a shapeless yew shrub. "I'm on that three years already, and I still don't have much," he said. "You can't carve it out, you grow it out—and then keep cutting away whatever grows that isn't bear," he said.

Green Animals is now one of the country's three leading topiary gardens open to the public. The others are Longwood Gardens and the stunning Ladew Topiary Gardens, near Towson, Maryland, which had a different genesis. It grew out of a man's lifelong devotion to goofing off. The man in question was born with a silver spoon in his mouth in Manhattan in 1887, when Fifth Avenue families like his had liveried footmen. He liked roller-skating in Central Park, but school was a

At Alice's Wonderland display, children are dwarfed by March Hare and Mad Hatter with hat of Calico ivy.

bore. Young Harvey Ladew believed his absences from school, touring Europe with his family, helped his education: "I can order breakfast in about five languages."

His father diligently expanded the family's industrial machine-belting empire. But Harvey was closer in spirit to his uncles—one of whom had devoted himself to buying ever larger yachts, each named *Columbia*. The other uncle was preoccupied with racehorses, chorus girls and—especially—clothes. The newspapers called him "The King of the Dudes."

Harvey grew up to resemble the actor William Powell, but with the soul of Peter Pan. He resolved to spend his first 50 years playing, his final years working. Except for the after-50 part, he stuck to it. His passion was fox hunting. In the late 1920s he bought an old 250-acre farm in the hunt country of Maryland. In England—where he spent months each year riding to the hounds—he had an epiphany.

"Hacking to an early meet, I rode along beside a very tall yew hedge bounding a large estate," he wrote. "Along the top of the hedge was a realistic Topiary fox hunt: a fox closely pursued by a pack of hounds." By the time he died in 1976, at age 89, Ladew had turned his Maryland farm into a topiary extravaganza.

I visited the Ladew estate on a misty summer morning. On the front lawn, a horseback rider was leaping a hedge, following five hounds streaking across the grass after a fleeing fox. It took a moment to realize none of these figures was actually going anywhere.

In all, Ladew created 15 gardens, like separate rooms with high hedge walls, around a central circular lawn. Some of these topiary walls contain windows and seem hung with swag curtains. Others are shaped into pyramids or arches or oddities, like three balls balancing atop one another. One wavy hedge has 12 swans floating serenely along the top.

With a heart pierced by an arrow

A doorway in another hedge leads into a room with hemlock walls. Inside, shading a table, is an umbrella of white roses and purple wisteria. In a nearby pond a topiary junk floats by with real red canvas sails, watched from the shore by a yew Buddha, beyond a crab apple arch. Just a short way off is a "sculpture" garden, populated by green sea horses and lyrebirds, a unicorn, a butterfly and a heart pierced by an arrow. Beside Winston Churchill's top hat stands a giant hand making a V for Victory out of yew.

After seeing so much traditional topiary, I was unsure what to make of the new unattached-to-the-ground "stuffed" kind, with its steel frames packed with moss. But the elephants at the San Diego Zoo looked so real they seemed ready to trumpet. And Pat Hammer, who recently published *The New Topiary*, told me that stuffed topiary is traditional, too. At least, it goes back to the Victorians.

Florists in the 1800s made "set pieces"—shaped wire frames stuffed with sphagnum moss and planted with flowers and ivy. "The Smithsonian has hundreds of those frames in its collection," Hammer points out. A funeral display might feature a "broken heart" or an "empty chair." "In those days, railroads had hotels along their rights-of-way, and in their lobbies were big floral replicas of locomotives," Hammer says. "Between flower seasons, the newly rooted ivy remained in place."

Hammer, whose company, Samia Rose Topiary, in Encinitas, is involved with projects from Seattle to Atlanta, is stuffed topiary's Joanie Appleseed. She has helped get the new form started at sites like Sesame Place, a theme park outside Philadelphia. Chris McCarron, the park's grounds manager, showed me Oscar the Grouch, in Telecurl ivy, sitting in a jalopy from the Sesame Street movie *Follow That Bird*. Oscar rested an arm on the jalopy's door.

"It's hard to keep that arm moist," McCarron said, probing the moss under the ivy with a finger.

Nearby was Cookie Monster, in dark Ivalace. "It has curly edges, so it translates to fur," McCarron told me,

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adding that he uses plastic eyes. Greeting kids as they enter the park is a topiary Big Bird, along with Ernie and Bert, whose hair is black Mondo grass. Jeff Salvesen, a college student on the grounds crew, confided: "What I really like is when the kids talk to them."

Pat Hammer also finds instant topiary turns kids on. She showed me Longwood's Children's Garden, which has a leporine theme: a topiary rabbit sits on a stump, fishing in a pool. A topiary rabbit magician pulls a topiary baby rabbit from his topiary hat. She pointed out something she had prepared for a Longwood chrysanthemum spectacular on an Alice's Wonderland theme. A life-size flamingo, its neck euonymus and its body pink *Crypthanthus*, a plant in the bromeliad family, was poised on delicate legs, which turned out to be concrete-reinforcing rods painted pink. Nearby, a White Rabbit the size of Michael Jordan lounged on a log, ready to check its pocket watch and hurry off. Next to the finished pieces an unstuffed caterpillar frame looked abstract and inert.

When it comes to stuffed topiary, clearly separating "art" from mere engineering is a tough call. Some old-style woody topiarists sniff at the new upstart. But we can't all be woody topiarists. It's too hard. My own front-door arborvitae topiary rocket (or whatever it is) has a midriff bulge that blocks light to the branches underneath, so that they are slowly dying. Hoping for hints on that problem, I sat in on a woody topiary workshop given by the Strybing Arboretum's Bob Hyland. We students, mostly home gardeners, sat outdoors at picnic tables, staring at foot-high potted Japanese boxwood shrubs. We were to prune them into balls. Hyland showed us his favorite Swiss shears: "I've cut my hand with these, and they make a very nice clean cut," he said, admonishing us to avoid anvil pruners, which crush stems. "We could spend two hours just on pruning, but the essence is to cut terminal buds and encourage lateral and latent buds, so you have fuller plants," he said.

We learned to slice twigs off at a 45-degree angle. If you miscut you can get rot. Hyland also told us, "If you have trouble trimming the bush into a globe freehand, hold a paper plate behind it as a guide." A bearded

Swans afloat on billows of yew got started in 1930s at Ladew Topiary Gardens near Towson, Maryland.

Famous Ladew fox hunt, with hounds and horsemen in pursuit of quarry, was grown and shaped from yew.

man wearing a San Diego Padres cap asked a question that had been troubling me, given my sick topiary at home: "If you prune a shrub into a ball, how do you get light to the bottom?" Hyland explained that trimming the trunk bare under the ball would in itself let in light underneath.

Woody topiaries can be created from a number of species. Yew, cypress and boxwood are common. Privet is goofproof, regrowing even when cut to the bone. But professionals turn up their noses: "Privet is so common and easy that some real gardeners sneer at it," Pat Hammer told me. For stuffed topiary, ivy is king. "As soon as Victorians started growing ivy as a houseplant," explains Hammer, "they had to find ways to control it." So topiary came naturally. Botanist Sabina Mueller Sulgrove, the American Ivy Society's research director, says that topiarists can choose among some 400 different types of ivies.

Wandering through the stuffed topiary workshops at the conference, I found one group using sticks to tamp sphagnum moss into wire frames shaped like rabbits. One of the tampers, Joann Clark, told me why she opted against woody topiary: "I'm a little taken aback by the chance of ruining a huge, wonderful plant that's alive," she said. "I'm going to work up to that." Kathleen Kinsey, an airlines worker, had a different reason for joining the stuffed topiary workshop. "I'm a bunny person," she said.

Some of us may be unsure about the attractiveness of ivy bunnies and potted ducks. But my observations of kids checking out the Disney exhibit at the topiary conference indicate the upcoming generation will be pro topiary, big-time. The exhibit's pièce de résistance was a Mickey Mouse stuffed with sphagnum moss and potting soil and planted with lobelia, cerastium and alternanthera. The topiary Mickey turned his smiling head, waving one hand. It was a breakthrough, the first animated topiary.

One toddler cute enough for *The Cosby Show* watched the smiling head turn and the gloved hand wave. His mother called. Gravely, the boy waved back at the topiary.

"Bye-bye, Mickey," he said.

Ladew gardener Frank Perra trims hemlocks to topiary shape. Massive walls behind are made of hemlock too.

Road leads to gardener's cottage where Harvey Ladew lived after he first bought the estate back in 1929.

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Viewed from the Potomac, Capitol is at right, behind Lincoln Memorial (foreground), Washington Monument.

Photographs by Fred J. Maroon

After 200 years, 'Congress House' is still open to all

And just about everyone who pays a visit to the U.S. Capitol is astonished by the wealth of art and ornamentation on display there

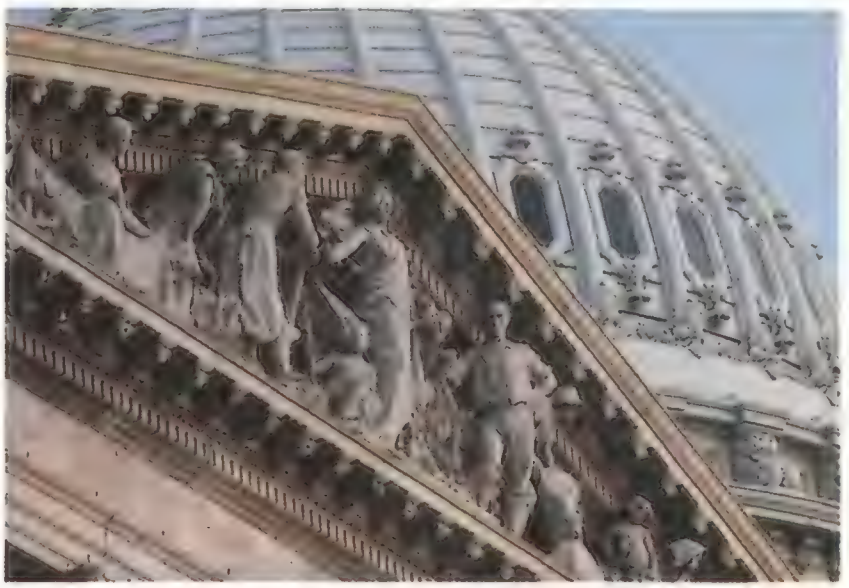
The soaring dome of the United States Capitol is one of the most cherished landmarks in a city chockablock with monuments and impressive edifices. Displayed beneath that familiar silhouette, however, is a trove of art about which few Americans know anything at all—elegant busts, paintings and frescoes; magnificent architectural details, and splendiferous ornamentation throughout. Now these heretofore underappreciated national treasures are receiving some much deserved recognition in a handsome book issued this month by Stewart, Tabori & Chang (New York). *The United States Capitol* features more than 150 pictures by the well-known Washington, D.C. photographer Fred J. Maroon, including the ones reproduced here. The text, by Suzy Maroon, tells the absorbing story of how this majestic structure came to be.

The book is being published to commemorate the Capitol's bicentennial. That it was built at all, given the young republic's general impoverishment, was a minor miracle. When George Washington laid the cornerstone on September 18, 1793, Pennsylvania Avenue was just an idea. President Washington led the dedication procession from the unfinished White House to what would become Capitol Hill (it was then known as Jenkins Hill) over a stretch of land so rough that at one point it was necessary to cross a creek on a log.

When the country's 174 lawmakers finally moved into the so-called Congress House in 1800, it was already beginning to fall apart. Some 20 years later, the Legislature—together with the Capitol's other occupants,

Viewed from Capitol Hill, monuments on Mall (left) are glowing counterpoints to illuminated dome. Begun in 1793, Capitol still dominates Washington, D.C. skyline because of height limitations put on other structures.

Based on Panthéon in Paris, dome rises over casting of Jean-Antoine Houdon's statue of George Washington.



Paul Wayland Bartlett sculpted *The Apotheosis of Democracy* from Georgia marble for House pediment.

the Supreme Court and the Library of Congress—had outgrown the place. The process of rebuilding, begun then, has continued to this day.

During the War of 1812, the Capitol was torched by British troops. In 1861, seventy-five Senators and Congressmen from the South cleaned out their desks and left. Four years later, the Civil War was over and the Union was intact, but its assassinated President, Abraham Lincoln, lay in state under the newly rebuilt dome. Capitol architects came (to date, nine of them) and went. With each passing decade, the gleaming creation Thomas Jefferson saluted as "the first temple dedicated to the sovereignty of the people" acquired ever more grandeur and dignity.

This year Bill Clinton became the 36th President to take the oath of office at the Capitol. But the building does not belong to Presidents. It belongs, as Jefferson noted, to the people; yet in the early years, commissions for artwork often went to Europeans whose classical motifs were not universally admired. In the mid-1800s one Congressman complained: "We have pictures of Bacchus, Ceres, and so on surrounded with cupids, cherubs, etc. to the end of heathen mythology . . . but not a single specimen of the valuable breeds of cattle, horses, sheep, etc. which are now found in the country." Thereafter, more commissions were awarded to American artists.

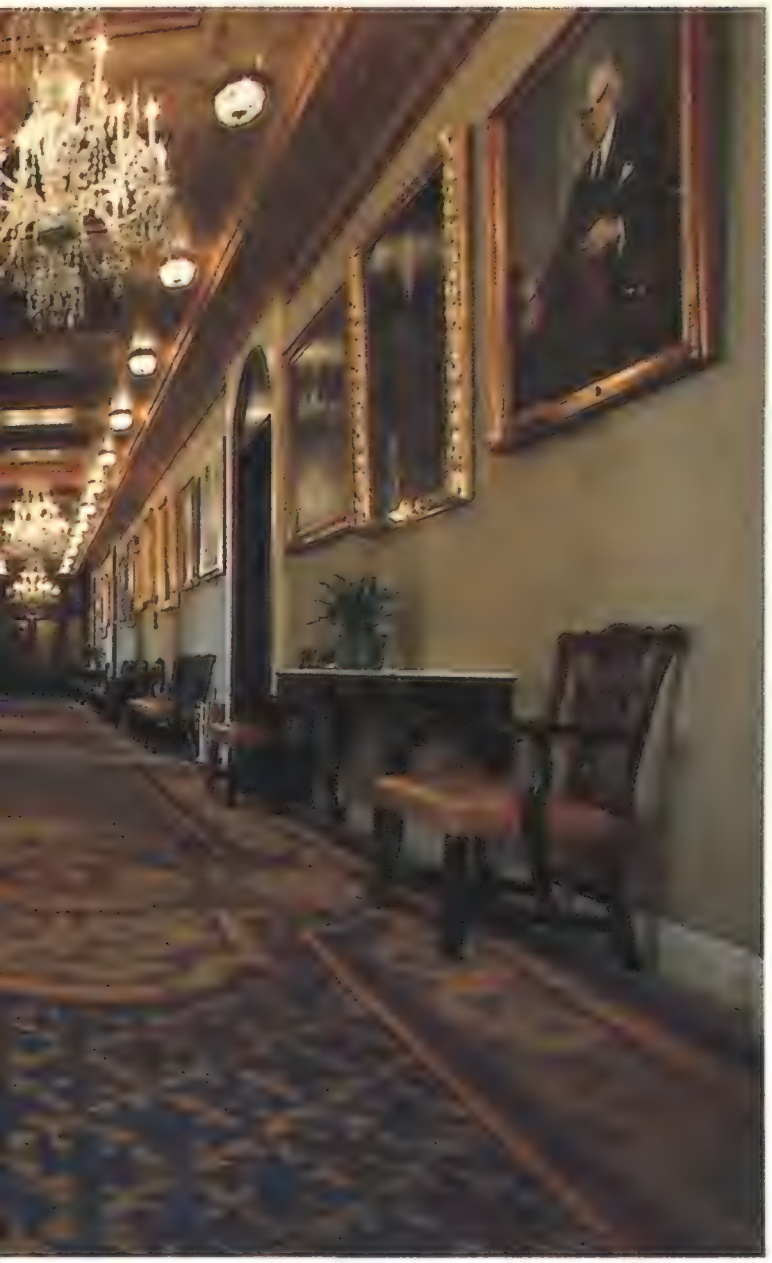
Jim Doherty

Speaker's Lobby, a gallery hung with portraits of all former Speakers, is directly outside House Chamber.

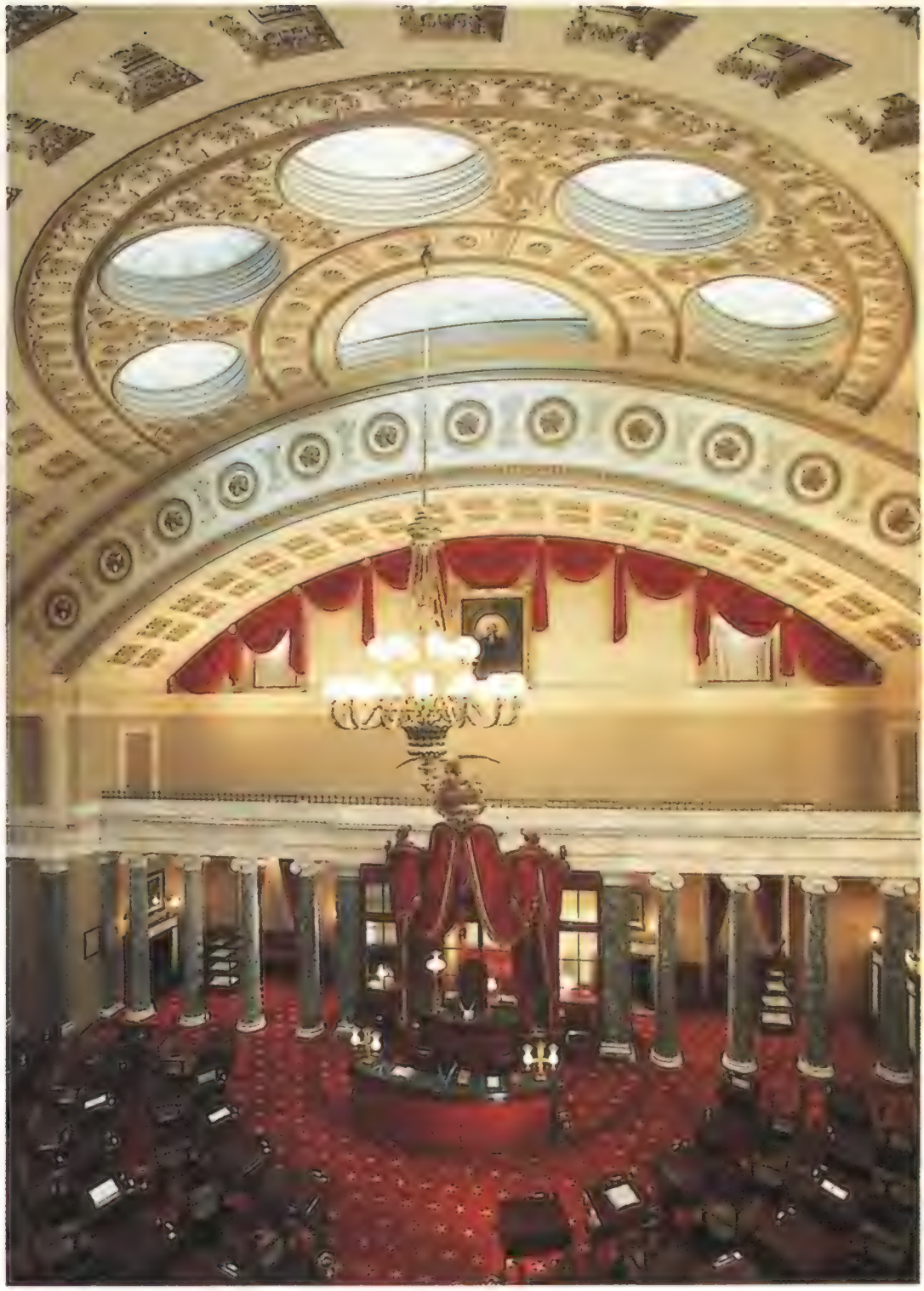
Ornate Senate Reception Room, finished in mid-1800s, was designed to impress visiting foreign dignitaries.

Inkstand on the Speaker's podium is displayed when session is on.

Car of History is one of the oldest works in Statuary Hall.



The term "lobbying" was born here; it's where supplicants waited to curry favor with Members.



Old Senate Chamber, now restored to early glory as a museum, was used from 1810 to 1859.

Floral paintings adorn ceiling of Members' private staircase.

Gilt eagle and shield surmount canopy in Old Senate Chamber.

Constantino Brumidi painted George Washington, amid figures symbolizing America, on a committee room wall.

House members can either relax or hold meetings in the Representatives' Retiring Room, off Speaker's Lobby.

In the Rotunda is this standing marble statue of Alexander Hamilton, which was sculpted in Rome by Horatio Stone in 1868.

Liberty and the Eagle, a sculpture by Enrico Causici, presides over Statuary Hall entrance.

Deer, cherubim and eagles cavort up Brumidi's bronze railing on the Members' staircase.

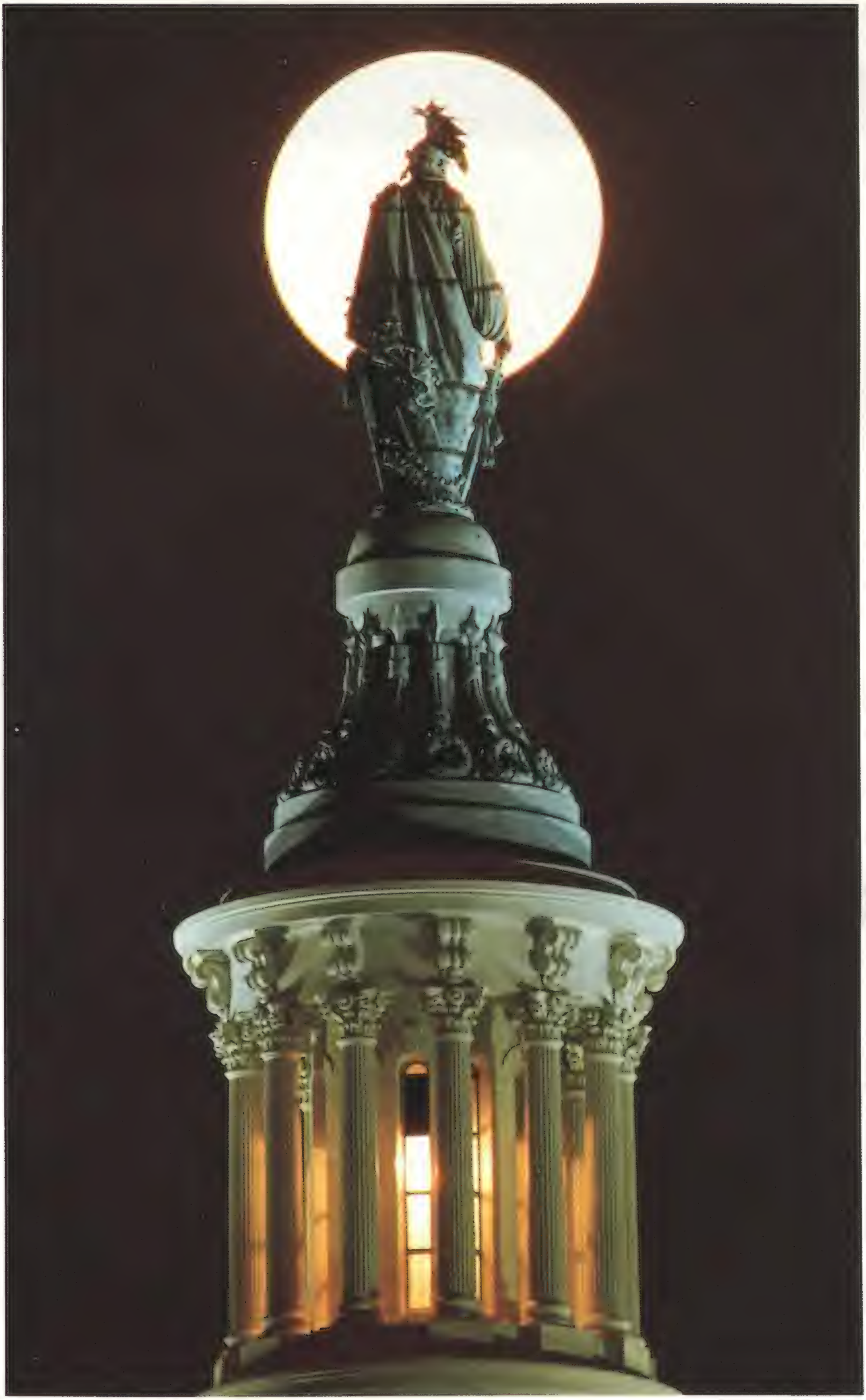
The Speaker of the House uses this elegant working office to hold press conferences, conduct meetings and entertain dignitaries. Each Speaker is entitled to decorate the office to suit his (or her) personal taste.

Called a trophy, a decorative wall painting of musical instruments representing different periods is in the Senate's Brumidi Corridor.

Abraham Lincoln was the first President to sign a bill into law in the opulent President's Room, which was designed for the purpose.

President George Bush spoke to a packed House Chamber in January 1992 as he gave his State of the Union Address.

Thomas Crawford's statue of Freedom atop the Capitol dome is a classical figure, not an Indian, as many seem to believe.



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*Based on a February 1991 USA TODAY reader poll. **Supplemental Restraint System. Always wear your safety belt.

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A M E I N S E C O N D

L I N C O L N T O W N C A R

WHAT A LUXURY CAR SHOULD BE

By Daniel Cohen

Grand emporiums peddle their wares in a new market

Downtown department stores once set the trends of consumer culture; now they're waging the retailers' war of survival—and some are winning

An hour before opening, the main floor of Strawbridge & Clothier's downtown store remains dark as early employees drift to their stations. Only the Food Court buzzes with activity, lights ablaze, a Tchaikovsky piano concerto pounding from the radio and the aroma of muffins drifting from the ovens. The flagship of Philadelphia's largest department store chain slumbers until, at 10 A.M., drop cloths come off the counters of jewelry and cosmetics, the showcase bulbs flicker on, and the Market Street doors swing open, as they have on this site for the past 125 years.

Among the most durable inventions of urban life, department stores such as this gave a city its character and fixed its center. They became the site of some of the most memorable rituals of life, not only reshaping how major holidays—Thanksgiving, Christmas, Easter—are celebrated, but through generations marking personal milestones, such as the annual outfitting for school, and the selecting of prom dresses, wedding gowns or youthful first suits.

My own mercantile rite of passage involved not buying but merely shopping—perhaps the department

At Strawbridge & Clothier's flagship store, in the center of Philadelphia (Thomas Jefferson had an office on the site), shoppers can still enjoy an emporium's elegance—but toys, books, records and more are gone.

store's most enduring creation. As 12-year-olds, a school chum and I rode the bus downtown and browsed the elegantly modern floors of Hutzler's, Baltimore's high-class emporium, feeling as worldly and sophisticated as boys could. Rounding the circuit of four big stores that clustered nearby, we honed our tastes for grown-up (and childish) things we could not afford. In recent years, ruminative shopping has lost favor—who has had the time or the money?—but I'm again ambling through the palaces of trade, to see what has become of a venerable pastime.

Once as solid a civic fixture as the public library or the bank, and as munificently housed, grand emporiums have in recent years retreated from many city centers to become mainly creatures of the mall, leaving downtown Baltimore, along with cities such as Syracuse, Detroit, Reading and others, with no anchor stores. And many of the great names of retailing have of late, through bankruptcy or merger, simply vanished, among them New York's Gimbel Brothers, B. Altman and Ohrbach's; Hartford's G. Fox; Garfinckel's in Washington, D.C.; Frederick & Nelson in Seattle; Bamberger's in Newark; and, yes, the stylish Hutzler's. With even the once impregnable R. H. Macy & Company (of New York and elsewhere) following at least three of the nation's largest department store holding companies into bankruptcy court since 1989, the big stores have lately emerged not as symbols of eternal commitment to shoppers but as victims of financial high-rolling gone awry.

Former masters of the retail universe, traditional department stores have endured a mercantile Big Bang, which in recent years has produced fierce new competitors including supernova discounters such as Wal-Mart (SMITHSONIAN, October 1992) and Kmart; speedy comets of specialty stores with thousands of outlets; and dense meteor belts of mail-order houses, which showered American households with 14 billion pieces of mail last year. And that's left many shoppers wondering if great department stores, with their array of big-ticket items, spectrum of price lines and specialized services, are becoming the brontosaurs of trade. "It took Bloomingdale's a hundred years to get to a billion dollars in sales; it took a televised shopping channel

In a 1951 price war with Gimbels, a Macy's saleswoman posts latest reduction on mixers, exciting the crowd.

Unhurried, unharried dry goods merchant offers gown fabrics to a stylish mother and her daughter in 1867.

like QVC five years," says Tom Holliday, a retail advertising consultant.

In Philadelphia, however, where institutions have tended to endure, Strawbridge & Clothier's anniversary next July will mark both continuity and change among the nation's 2,400 traditional department stores that sell "soft goods" (apparel and linens) as well as "hard goods" (furniture, appliances and housewares). Founded by two Quaker merchants in 1868, the firm maintains its headquarters on the same corner where it first opened its doors. In an era when no namesakes of Chicago's Marshall Field, Boston's William Filene or Minneapolis' George D. Dayton any longer run the stores that bear their names, S&C's is still controlled by members of its founding families, all but alone among full-line department stores in the United States.

It is alone, too, on its once thronged site on Market Street, where for decades three enormous emporiums crowded the corner. Though S&C's flagship is attached to a bustling downtown mall, the company now does most of its selling at 12 suburban branches, each one-quarter the size of its behemoth main store, and at its own Clover chain of 25 discount stores. "The department store is absolutely not a dinosaur. It has survived every calamity since before the Civil War," insists G. Stockton Strawbridge (p. 133), the officially retired but reigning patriarch whose 59-year career at the store included 24 as president and chairman. But the survivors may not look quite like their forebears.

As I peregrinate upward through the million-square-foot store, it becomes clear that it preserves the amenities of a classic emporium as well as the sedateness. On the main floor, after I rub the lucky nose of store mascot *Il Porcellino*, a bronze boar, a clerk promises to track down a shirt from another branch. On Six, there is a cloth-napkined, red-walled restaurant where waitresses in starched aprons ask incredulously, "No dessert?" On Seven, attentive salesmen hover near the escalator, ready to show willing customers furniture arrayed in room settings. In between lie floors of apparel ranging from budget to "bridge" (a notch below haute couture), and tableware and giftware spanning the formality of sterling and the frivolity of coffee mugs with whale-tail handles. Of course, I'm seeking not just merchandise but vestiges of store history. On Five, I think I have discovered what was once the big stores' most unpredictable section. Lettering above a corner shelf announces "Notions," and I'm transported, remembering childhood forays to such an aisle. There would be found thimbles and scissors, combs and curlers, doodads and buttons. "It was where we put everything we didn't know where else to put," muses S&C's historian and former executive Frank Veale.

The Notions aisle also embodied the earliest origins of many big stores. Small essentials—button hooks, thread, sewing needles—along with a selection of lin-

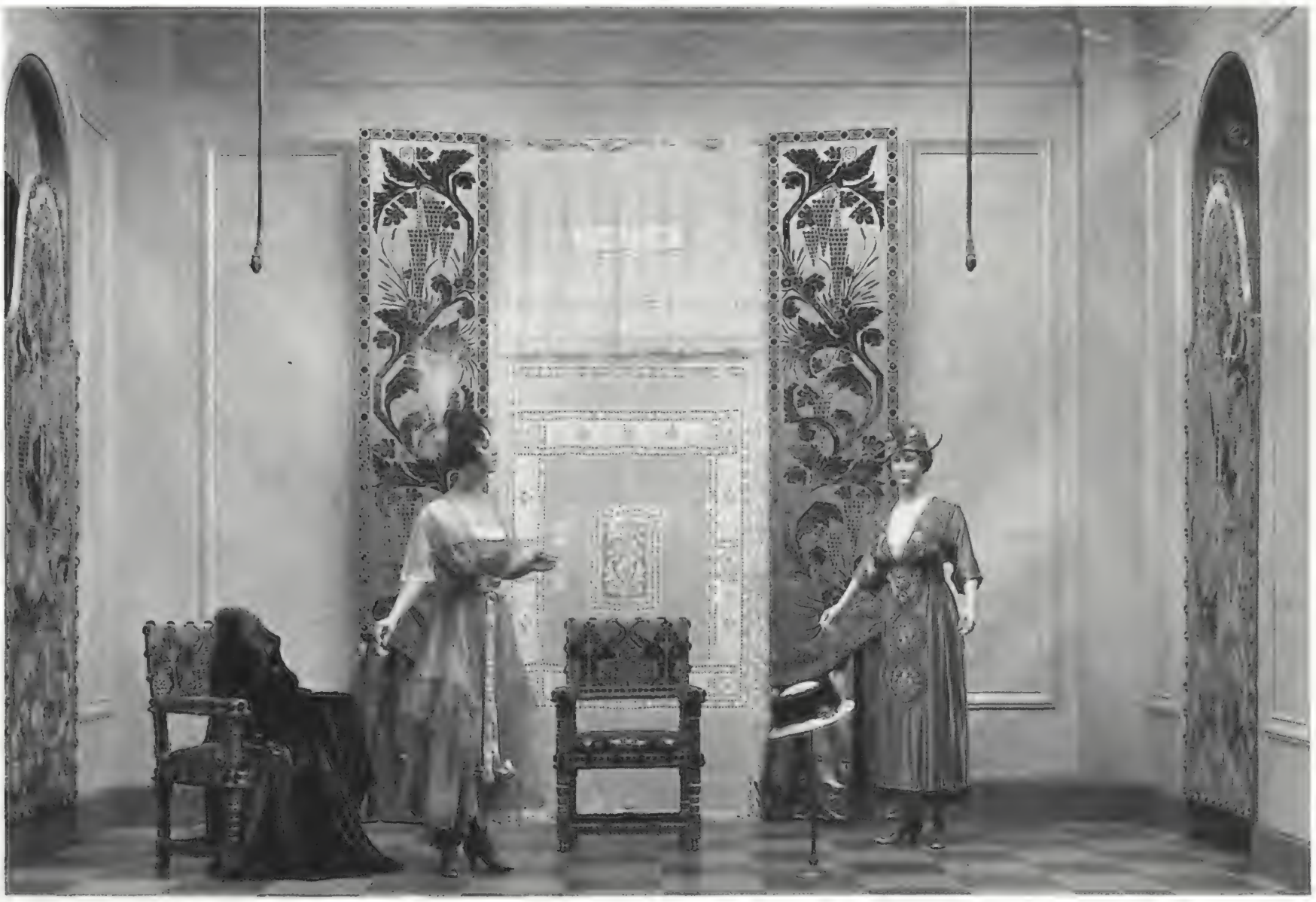
Daniel Cohen, self-confessed browser and shopper in what he admiringly calls "palaces of trade," often writes on social and business history in these pages.

ens, laces, shawls and silks formed the stock of peddlers who roamed the rural South and Midwest on foot, selling from a bulky pack they carried. Some moved up to horse and wagon, then graduated to a small storefront, which later became a department store. That's how such merchant princes as Atlanta's Morris Rich, Indianapolis' Lyman S. Ayres and Lazarus Straus of Talbotton, Georgia (his family became owners of Macy's) began.

Despite its pedigree, Notions lost its main-floor franchise at S&C's a decade ago when Peter Strawbridge, president since 1979 and one of a phalanx of fourth-generation descendants of the founders in top management, saw the benefits of the Food Court in its place for generating traffic. Now the bustling, 9,000-square-foot hall sports the city's largest candy department, and counters that dispense crusty French breads, dressed poultry, pâté and scrapple, fresh flowers, and a million dollars' worth of deli meats, cheeses and salads a year. Upstairs, though, I'm quickly disappointed: Notions has vanished—its shelves now belong to the Closet Shop, stocking silver paste, dustcloths and mothballs.

Even so, department stores maintain a cautious attitude toward rearranging departments. "You don't move sections around; it's like moving the customer's own living room furniture," says former executive Homer Sharp, now historian at Marshall Field's, which nonetheless recently finished a $115 million renovation of its main store, in Chicago. The makeover followed at least one trend inaugurated by Macy's, which in 1976 (about when its time-honored slogan, "It's smart to be thrifty," came off the Seventh Avenue facade) evicted its celebrated bargain basement in favor of the Cellar, a splashy arcade of housewares and gourmet food.

Invented in the late 19th century and mostly stocked with distinct lines of merchandise (not leftovers from upstairs), budget floors attained legendary status in 1909 when Filene's opened its Automatic Bargain Basement; the dated price tags required markdowns of 25, 50 and 75 percent on a fixed schedule. By the time cashmeres salvaged from a fire at Neiman-Marcus, and Schiaparelli and Chanel gowns evacuated from Paris showrooms at the start of World War II had been disposed of there, Filene's Basement was setting standards



A 1915 Marshall Field's window by Arthur V. Fraser, the dean of display, features aristocratic wax figures in sumptuous gowns amid a museum-quality setting. The intention: to blend elite image with popular appeal.

Doll scene in Macy's holiday window (1876), promoting local orphanages, presages child-pleasing displays.

Bikes, sleds and the like, here proffered by Santa in 1945, were big sellers after WWII metal shortage.

for shoppers' combat—and unabashed disrobing in the aisles to try on outfits. "You'd grab everything in your size, then sort through the pile in your arms," recalls Ann Burack-Weiss, an alumna of Filene's Basement and its comparatively sedate College Board, which employed coeds as consultants on campus fashions.

Despite the traffic-building bargains, department stores grew disenchanted with low-end sales. "By the '50s they found, what with all the amenities—liberal credit, easy returns—they couldn't afford the 'basement' and gave it up," says Joseph Siegel, a merchandising executive at the National Retail Federation. Instead, the big stores marched relentlessly toward more-upscale customers and more-expensive merchandise. That abdication opened the door to discounters like Kmart, which captured the market for budget merchandise and became mortal competitors for one of department stores' most dependable niches. By the 1980s, traditional emporiums were engaged in cutthroat price cutting of their own to lure back customers.

Fixated on competition among themselves rather than from the mass merchandisers, many department stores lost the knack of blending elite image with popular appeal that had fueled their success. As early as 1846, A. T. Stewart opened his Marble Dry Goods Palace across from City Hall in lower Manhattan and promoted the idea that any female who bought from a merchant was a "lady." An impresario of retail showmanship, Stewart pioneered in-store fashion shows, set up a ladies' parlor where shoppers could preen in America's first full-length Parisian mirrors, and made sure his salesmen had dandified good looks and careful manners. The carriage trade promptly crossed to his previously unfashionable "shilling side" of Broadway, establishing the department store's power to redefine a city's downtown. (Stewart's Palace still stands, now a city-owned office building.)

Ever alert to wishes of the elite who could influence fashions citywide, the department stores also sought to make themselves accessible to women of all classes—by clearly marking prices to eliminate haggling, encouraging browsing with easy-to-reach merchandise and accepting returns without questions. That new ethos replaced the older tradition of keeping nearly all goods behind the counters, with the goal of allowing no one to leave without making a purchase.

The byproduct was the creation of a new form of entertainment—with no admission tickets. Interiors grew ever more splendid, culminating with the New York store that mimicked the 1893 World's Columbian Exposition by displaying a copy of Daniel Chester French's statue *The Republic* in a 70-foot basin, drawing 150,000 to its opening. Pursuing grandiosity, department stores went on to sell airplanes and automobiles, auction fine art (including William Randolph Hearst's incalculable hoard, at Gimbel Brothers in the 1930s), broker apartments that were fully re-created on their furniture floors, repair hunting rifles and shattered antiques, and publish novels. Lord & Taylor offered equestriennes a mechanical horse to assure the perfect fit of riding habits. Marshall Field's provided free, same-day delivery of purchases as small as a spool of thread. Rich's exchanged unused merchandise it had sold as much as 30 years earlier or had never sold in the first place.

Through elaborate interior displays, artfully dressed windows and increasingly flamboyant advertising, the stores hosted a theater of the imagination in which

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Grand emporiums, themselves a form of entertainment, have also starred in films. In *The Big Store* (1941), nattily dressed Groucho Marx sports a necklace snatched from a jewelry counter and exhorts saleswomen to "sing while you sell . . . sell this wienie with Rossini. . . ." He plays a detective-bodyguard who masquerades as a floorwalker, hence the morning suit—Groucho's trademark attire.

extravagant future purchases might be as enticing as presently affordable ones. Turn-of-the-century consumers, the historian Gunther Barth has noted, "were just learning to buy things they did not need, but had not yet discovered that they could do so with money they did not have." They would soon find out; Sears, Roebuck first extended credit to farmers for large mail-order purchases in 1911, and by the '20s "layaway" installment plans were common elsewhere.

Once the only form of consumer credit available to many working people, department store charge plates made shoppers surprisingly loyal. So did a clearly understood social hierarchy of stores that allowed shoppers to establish their own identities. "Wanamaker's had the carriage trade. We were just a notch below. Gimbels drew the middle class. Lit's and Snellenburg's were blue-collar," recalls Stockton Strawbridge. The arrival of bank cards in the 1960s gave consumers credit nearly everywhere, ending fealty to any one store.

Until the advent of discounters, department stores were often the premier toy vendors, whose displays created indelible settings of childhood. Field's once vast toy department had a puppet section where shows were mounted; Burr Tillstrom and Kukla, Fran and Ollie had their debut there before becoming TV celebrities. Bullock's Downtown, in Los Angeles, created a form of proto-day care before World War II: "Bullock's was one of our playgrounds. There was a polished hardwood slide from the ninth-floor toy section—a fantasyland—to the hairdresser's on Eight, where our mothers were," says Joan W. Jencks, a California historian.

Retailers' genius for imprinting children coalesced at Christmas, though no one seems to know exactly when Santa Claus began to appear in stores. But by 1910 S&C's, for one, was exhorting youngsters to visit "Krisskringleville" with its doll salon, stuffed-animal zoo, merry-go-round, toy boats in a tank—and red-suited Santa. In Atlanta, Rich's made riding the Pink Pig, an in-store miniature train, a nearly obligatory holiday ritual for decades. And in 1939 Montgomery Ward's began giving away books about a new character first called Rollo, then Reginald and finally Rudolph, a reindeer with a radiant nose; when Gene Autry recorded Rudolph's signature song in 1949, the charismatic critter ascended to the pantheon of holiday icons.

An estimated 10,000 Santas work each holiday season in a job that has become more and more structured. (Rules: Don't say "Ho, ho, ho!" because it scares children; never assume that accompanying adults are blood relatives.) "The worst part," says Kevin McCloskey, a Santa veteran, "is that they want you to turn the kid's head for the photo, and so you don't even make eye contact." But now that much of the toy trade has left the big stores, so have many of the Santas, migrating to the suburban—and urban—malls.

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other major holidays, too. Until the Ohio merchant Fred Lazarus jr. got hold of it, Thanksgiving had been celebrated on the last Thursday of November. In 1939, with the feast due on the 30th and Christmas shopping thus confined to just 24 days, Lazarus led a campaign to fix the holiday, instead, on the fourth Thursday. When President Franklin D. Roosevelt complied, that year's retail frenzy expanded by a week; Thanksgiving has stayed put ever since. Mother's Day benefited from the mercantile ministrations of John Wanamaker, who mobilized opinion to turn a European religious fete into a national commemoration of earthly maternity.

And Wanamaker's influence didn't stop there. As Postmaster General in the Harrison Administration he had proposed rural free delivery and the parcel post system (which helped Sears and Montgomery Ward grow vastly), though possibly his greatest cultural impact came when his store adopted the slogan "The customer is always right."

In the same epoch Marshall Field, enforcing a similar dictum to "give the lady what she wants," incarnated the image of the formally clad proprietor (precursor of the floorwalker, or floor manager) standing watch in his store. Such a personal bond with shoppers served a serious marketing purpose. "There were no national brands for clothing. You needed local certification and someone who would take an item back," notes George Sternlieb, a regional planner who has studied big stores. Only after World War II did many manufacturers insist on putting their own names on goods. Repeal of fair-trade laws in the 1970s ended the stores' exclusive marketing rights and the fixed prices on branded goods. Yet Peter Strawbridge and his cousin Francis, the chairman, still make a brisk daily tour of the selling floors.

From the earliest days merchants like Field, who catered to a female clientele, were strengthened by pioneering feminists who saw consumerism as a vehicle for emancipation. Along with promoting a woman's right to own property, keep her children in a divorce settlement and hold a paying job, Elizabeth Cady Stanton, a founder of the 19th-century movement, stressed a wife's right to spend a portion of the family income. On speaking tours, Stanton invariably told the tale of a Congressman's wife whom she had persuaded to replace a faulty stove *on her own*. "Go out and buy!" she exhorted female audiences in 1852, and to a remarkable degree they did. By 1915 women controlled some 90 percent of consumer spending in the United States, and a similar proportion of department store customers were female.

Snoopy soars at Macy's Thanksgiving Day parade in Manhattan, kickoff of Christmas shopping season.

The worldly lure of the selling floor

Before the Civil War, *Godey's Lady's Book*, the first American women's magazine, had surveyed women's employment options and dispiritedly concluded that there were still only two: "teaching and the needle." Department stores changed that, too, as women displaced men on the selling floors, dispensing fashion advice and giving fittings, which shoppers preferred to get from another female. Although wages stayed low, averaging just $6 a week in 1890, department store work continued to attract real-life women as it did Theodore Dreiser's fictional Sister Carrie, who coveted the clerks' "self-satisfied and independent air which experience of the city lends."

Following World War I the big stores provided women access to jobs that offered the independence and adventure of, say, a merchandising manager, or perhaps a buyer, traveling to markets to acquire new fashions—and occasionally traveling all the way to the executive suite. For some, department store work was merely a stepping stone—as it proved for actresses Dorothy Lamour, Carol Channing and Butterfly McQueen. One of the first female executives was Margaret Getschell, a distant relative of R. H. Macy's who became store

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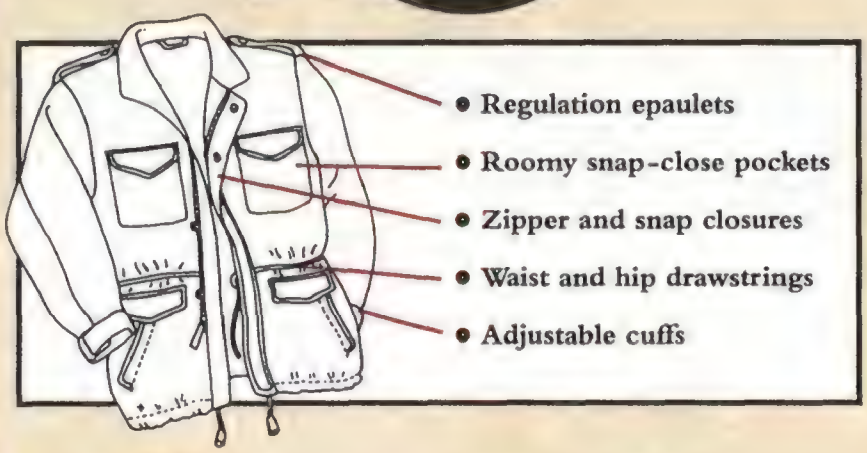

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Entrance to Strawbridge's popular Food Court provides off-street parking for a century-old delivery wagon.

superintendent in the 1860s and imposed this dictate: "Be Everywhere, Do Everything and Never Forget to Astonish the Customer."

Success in astonishing the customer remains a hit-or-miss affair for the buyers, who decide what will be stocked six months hence. After one frenzied day with some of the best, I decide that the job carries a high price for its independence and adventure, especially during the twice-yearly market weeks, when thousands of out-of-town buyers converge on Manhattan's Seventh Avenue. Spending someone else's money like this should be fun, but I'm overwhelmed by the choices (and can't stop noshing on the sweets proffered at every showroom).

Proud of being "local guys doing local business," S&C's merchandisers have become adept at judging Philadelphian tastes, which proved resistant to microwaves and Mexican food, and shunned short skirts. Even so, argues sportswear buyer Beth Richter, "I don't think Philadelphia is all that conservative." She confidently places orders for fringed boleros, quilted bomber jackets and cuffed walking shorts. The same designer labels are available in stores everywhere, she notes, so most fashion has gone national. With powerful designers demanding control of how their merchandise is shown or even leasing space from them, department stores are now mimicking their original 19th-century format: a group of independent merchants gathered under one roof.

Two ancient woes once bedeviled salespeople at the big stores and fueled their protests for decades. They had to stand without respite, and their workdays lasted the 12 to 14 hours that the stores stayed open. Employee-sponsored "early closing" movements tried to obtain relief, but not until FDR's New Deal imposed a 40-hour work week did hours decrease everywhere. Lately it is management that has been wistfully hoping for more time off. Only in the 1970s did S&C's give in to having Sunday and Memorial Day business hours, but it still draws the line at the Fourth of July.

A paternalistic spirit thrived at many stores, which fortified the staff with hot soup, put deck chairs on the roof for their repose and ran in-store schools for their betterment. E. A. Filene used his family's store as a laboratory for social reform, introducing to the industry radical notions such as the minimum wage, paid vacations and health insurance, and in 1907 creating the nation's first credit union. But when he planned to turn over ownership to the employees, his partners ousted him from management and in 1928 merged Filene's into a holding company, Federated Department Stores. The new company would later comprise many of the nation's most prestigious department stores, including Bullock's, I. Magnin and Rich's.

Today the department store in its classic form—a single-site emporium owned and run by its founding family—has evolved into another species, a group of stores controlled by a retailing conglomerate. The costs of suburban expansion after World War II had often exceeded what the proprietors could muster, and family feuds coupled with a lack of talent in a third or fourth generation drove many to sell out. Growth of branch stores, in turn, contributed to the glut of retail space that now hobbles department stores (and other merchandisers): in the United States over the past 25 years, the amount of retail space per person has increased by 450 percent.

Mergers, acquisitions and red tape

As founding families left the business, the corporate genealogy of department stores became as complex as the bloodlines of European royalty. After Marshall Field's death in 1906, for example, his estate sold 90 percent of the family's stock to store management; by 1965 the family had cashiered its last holdings. In the 1970s the firm rebuffed two takeovers, but in 1982 it merged with a unit of British BAT Industries, which then owned Gimbels and Saks Fifth Avenue, and in 1990 it was resold to Dayton-Hudson, which operates department stores and discount chains.

Perhaps because of its two founding dynasties, S&C's by contrast succeeded in keeping control within the families. Direction passed from cofounder Justus Strawbridge to his partner's sons after 1900, aided by the nonfamily Herbert J. Tily, who in 1906 launched Clover Day, a pioneering promotional gambit that

still survives (he also won fame as conductor of the store's musical pageants). Stockton Strawbridge, a founder's grandson, became the family's most influential modern member and ushered in the four great-grandsons who now occupy top management, a rarity in American retailing. They, in turn, repulsed an unfriendly takeover in 1986. As for dynastic continuity, says 54-year-old Peter Strawbridge, "the fifth generation is a great big question."

While waiting to see if any heirs have the mettle and desire to run a near-billion-dollar chain, the Strawbridges contend with endemic woes of the trade—competitors from outside the region and waves of price-cutting on branded merchandise. Now, along with the periodic green Clover Day sale signs, there are red-tagged "value priced" goods that are guaranteed not to go on sale until the end of the season.

From once having promised, as did Rich's, to be "all things to all people," department stores can now, alas, be measured by the things they do *not* sell. Virtually none any longer offer "white goods"—appliances like stoves and refrigerators. What were known as "black goods," a complete line of funeral fashions that was a staple for decades, have vanished from the floors. "Brown goods," the real-wood and then fake-wood-grain cabinet items, such as TVs and sound systems, are an endangered species; as with appliances, discounters now offer them at prices the emporiums find difficult to match. Extinct departments at S&C's include sewing machines, fabrics, books, records, sporting goods and toys.

Many of the most successful department stores—they hulk at the ends of regional malls—now defy the traditional definition of the genre: they have become huge apparel stores with giftware sections. Still, the diehards plan to stick with the old formula. "There will always be a place for a store where you can buy a juicer, a couch, a fur coat and earrings," says Daniel Skoda, Marshall Field's president. And exchange any of them for something else.

G. Stockton Strawbridge, a founder's grandson and firm's chairman emeritus, stands with store's replica of *The Wild Boar (Il Porcellino)*, commissioned in 1612 by the Medicis. Shoppers rub its nose for good luck.

One Friday morning, an 18-wheeler didn't see Darlene and Tom driving to work until it was too late. Their Saturn sedan was blindsided. It spun around and rolled, ending up in the highway median.

The hospital stay was short—under two hours. But still, being thrown against shoulder and lap belts at highway speed, no matter how safe your car is, hurts. For Tom, the old college lineman, the aches and pains felt kind of familiar. And he was back at work on Monday. For Darlene, who'd never played football, it took a little longer.

Everyone at work was glad to hear how the car held up in the crash. Many of them own Saturns, too. In fact, there's quite a high percentage of Saturn owners where the Robisons work.

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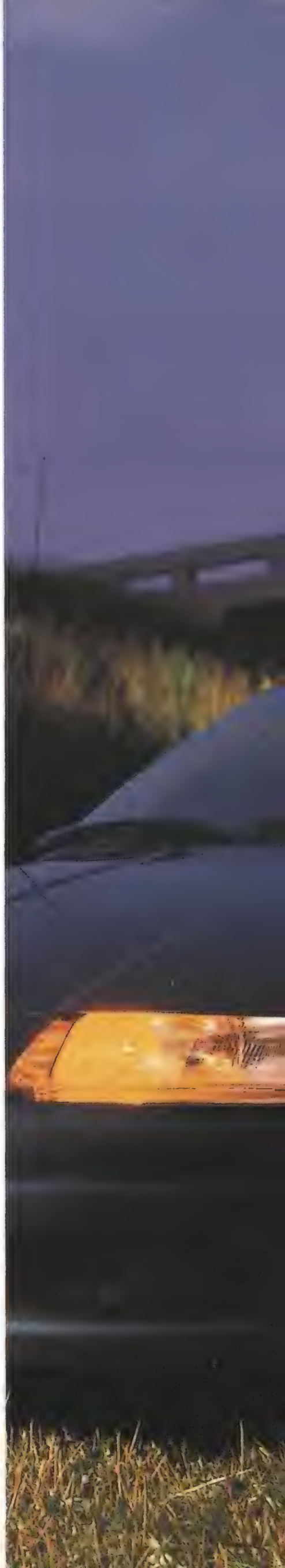
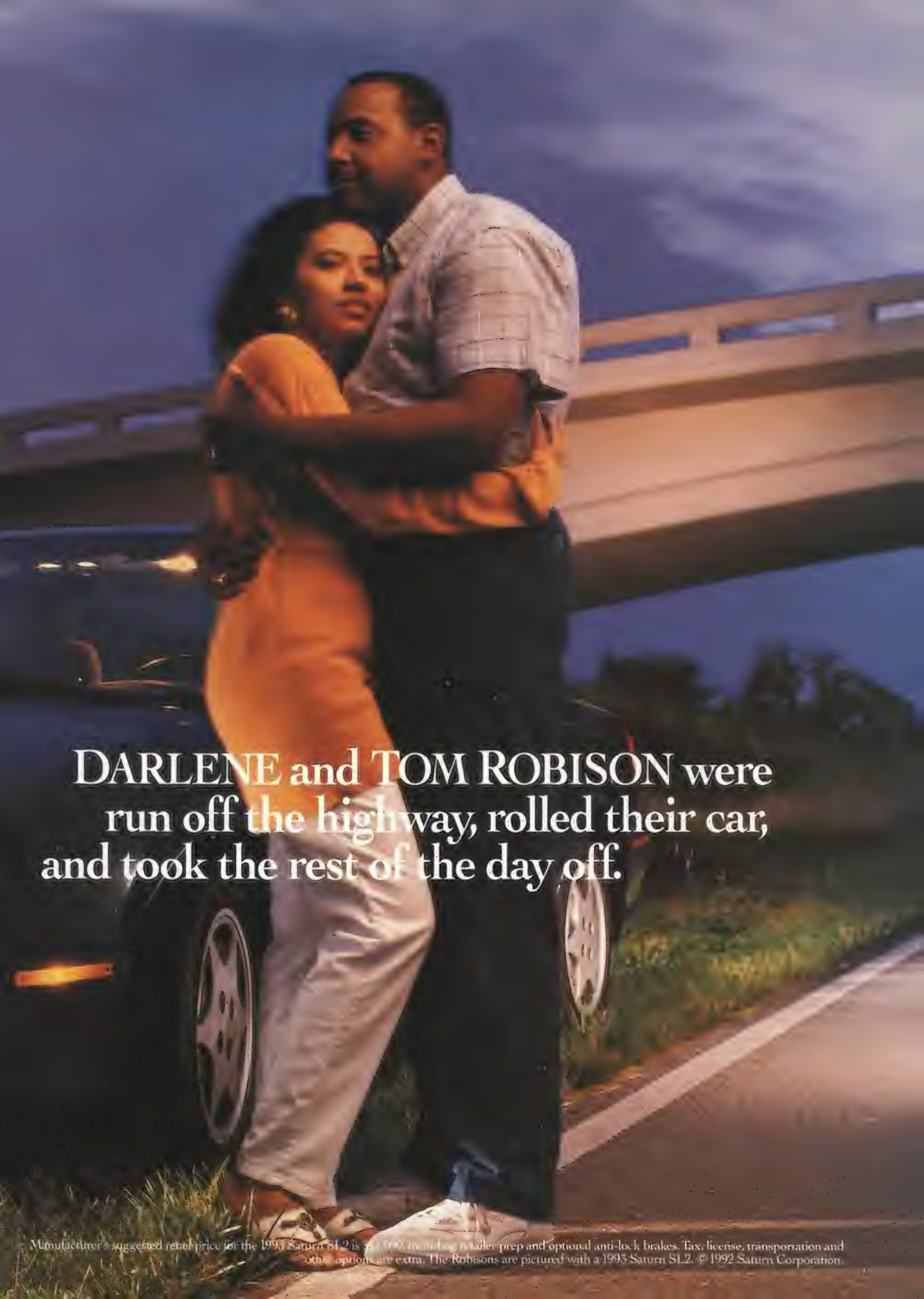


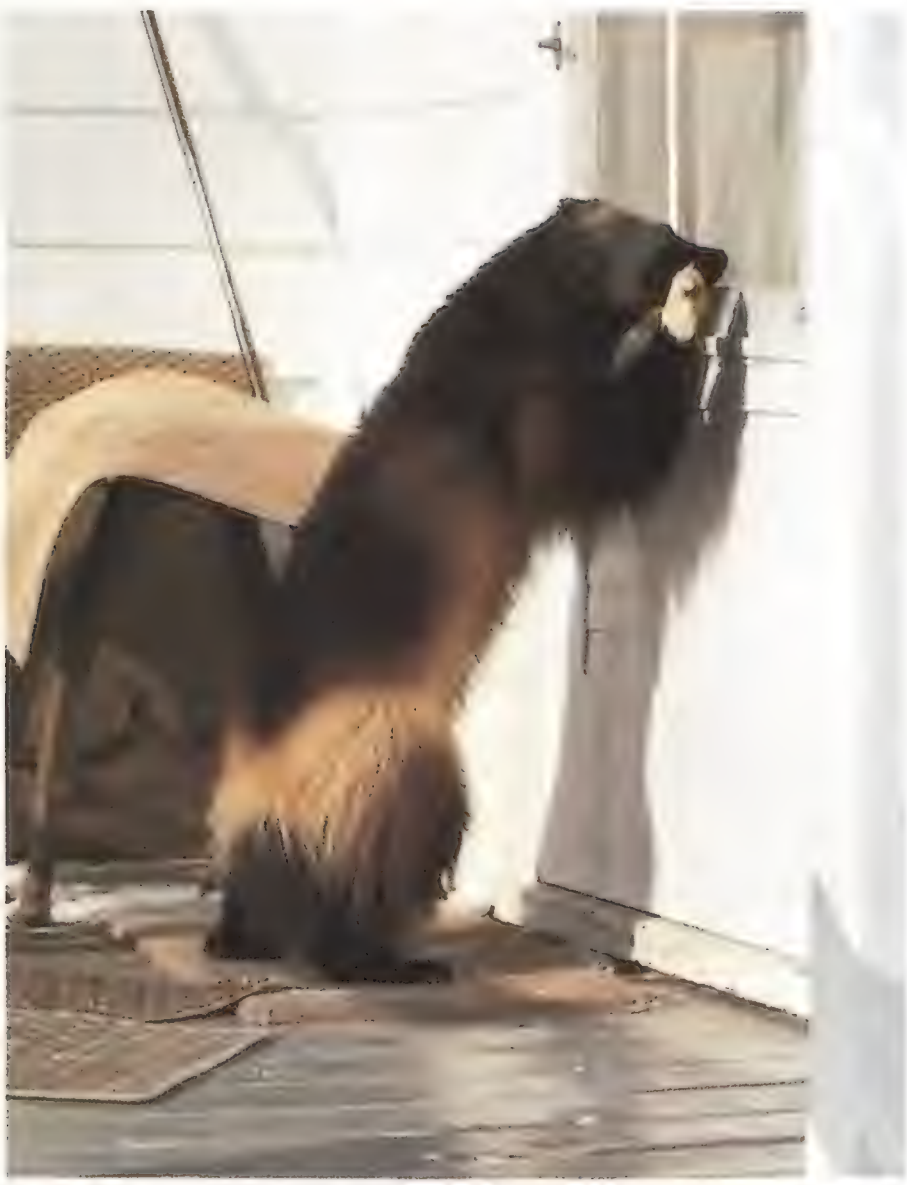


Manufacturer's suggested retail price for the 1993 Saturn SL2 is $[illegible] including dealer prep and optional anti-lock brakes. Tax, license, transportation and other options are extra. The Robisons are pictured with a 1993 Saturn SL2. © 1992 Saturn Corporation.

By Bil Gilbert

What to do if a demon of the North comes a-calling?

Relax. It's only a wolverine. This resourceful creature is no pushover, but it isn't the 'monster' some people like to imagine, either



Wolverine raised as a pet on a farm in southeastern Minnesota waits for someone to let him into the house.

Four generations of Kroschels live in two separate houses on a 1,000-acre farm located 70 miles south of Duluth, Minnesota. Steve, of the third generation, his wife Cyndi and their 2-month-old son Garret live in the oldest house. Steve and Cyndi are professional wildlife film makers and occasional lend-a-hand farmers. After Garret's grandmother Fran arrives to sit with him for a while, his parents are ready to go for a walk with Cinder, One Paw and Bear. I'm ready, too, having come to the farm in hopes of doing just that.

Cinder is a black Labrador bitch. Like the dog who has been their companion since infancy, One Paw and Bear are yearling mammals who weigh about 45 pounds. For the moment, to create a bit of narrative suspense, they will not be otherwise described.

It is a sunny winter day and a moderate one for this part of the world, with a temperature of 15 above zero and a foot or so of old snow on the ground. Cinder, One Paw and Bear have separate outdoor quarters, and as we come outside they begin bouncing around them in anticipation of the outing. When the doors of their kennels are opened, the three of them come boiling out and commence chasing through the adjacent woodlots and fields, occasionally bowling one another over and wrestling in the drifts.

During this first outburst, the three of us keep prudently out of their way to avoid being blindsided. However, when we get to the middle of an open hayfield, Cyndi, who has been housebound all day, decides she wants some play. She throws herself down in the snow, extends her arms and wiggles them like a child making angel patterns. Cinder and One Paw rush up, jump on her, and the three of them begin rolling around, batting and pulling at one another. When she has had enough, Cyndi says so emphatically and gets to her feet as the other two sprint off, continuing their pursuit and tag games.

One Paw nibbles at my hair and an ear

Cinder's legs are longer, and where the snow is sufficiently crusted to hold her weight, she rather easily stays ahead of One Paw and Bear. But though stockier, they have much larger, splayed paws and therefore do not sink into soft snow, as she does. They have another obvious advantage. Both are good climbers, comparable to raccoons in this respect. Also they are impressive leapers. Having swarmed ten feet up the trunk of an oak, One Paw studies me for a moment, launches himself out of the tree like a huge flying squirrel, lands at my feet and bounds up on my shoulder. He nibbles at my hair and an ear for a moment, then jumps down and runs off looking for better entertainment.

So far as this mystery goes, enough is enough. One Paw, so called for a whitish blaze on his right forefoot,

Steve Kroschel wrestles with One Paw, at right, and Bear. The animals like pummeling each other but have never bitten one of their human playmates. They are especially gentle with Kroschel's active young son.

and Bear, the burlier of the two, are wolverines, representatives of a species (*Gulo gulo*) that has a large, ancient reputation for unbridled, almost pathological ferocity. In formal Western literature, perhaps the first mention of these animals—who have a circumpolar range—was made by a Swedish bishop, Olaus Magnus. He wrote, in 1555, that in the Arctic realms there were three vicious monsters: a giant octopus, a sea serpent and, on land, the wolverine. In other places and times, the wolverine has been identified as the "demon of the North" and a familiar of the devil. In many folk yarns and not a few works of natural history, it is suggested that wolverines are aberrantly aggressive and bloodthirsty beasts whose main occupation and peculiar pleasure is savaging all other creatures great and small.

While we watched One Paw and Bear romping about, Steve Kroschel gave a biographical sketch of this pair of demons. During his boyhood, his family operated a large mink ranch and because of this business Kroschel developed a general avocational interest in the local fauna. He was around and sometimes raised crows, geese, martens, otters, raccoons and foxes, among other animals. Those early experiences, not a precocious passion for cameras, eventually moved him to become a wildlife film maker.

For as long as he can remember, Kroschel has been fascinated by wolverines, basically because of the gaudy stories he heard about them. In the course of his film work, he became acquainted with the owner of a Saskatchewan zoo who had several wild-caught wolverines. Early in 1991, the Canadian called to say that one of the females was pregnant and if she littered successfully the Kroschels could have two kits. It was an offer Steve could not refuse. He and Cyndi drove to Saskatchewan in March of 1991 and were on hand to film One Paw, Bear and two littermates nursing. In late April, with the permission of Canadian and United States wildlife authorities, the couple brought the infants back to Minnesota.

The largest member of the weasel family, the wolverine generally does well in captivity, not being particularly finicky about diet or accommodations. After One Paw and Bear were weaned from nursing bottles in the early summer, they were raised and thrived in much the same fashion as ranch mink. However, for reasons of pleasure, curiosity and business—the two

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One Paw (left) and Steve Kroschel's dog Cinder go nose-to-nose at play.

wolverines will eventually appear in a "wildlife" film—the Kroschels had no interest in keeping them permanently caged. Consequently they spent a lot of time playing, talking and walking with the cubs.

So far as socializing the wolverines is concerned, Cinder, the Lab who was obtained with this purpose in mind, has been a crucial role model. Clearly there is a strong bond between the animals and it has greatly facilitated the practical management of this interspecific pack. When they have strayed too far, the dog, when called, stops what she is doing and returns. The wolverines stop what they are doing to follow her. Cinder comes on command basically because, as the result of 10,000 years or so of selective breeding, dogs are marvelously responsive to people. The wolverines come because there is an element in their nature that enables them to develop a companionable relationship with at least some dogs and people. In perspective, the adaptive behaviors of all three species are equally thought-provoking.

One Paw and Bear sometimes growl when playing tug-of-war with a stick, ball or bootlace, but this seemingly is an expression of competitive exuberance, not genuine hostility. When running free they are eager to sniff,

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Attacking Cinder from rear, One Paw instigates another round of roughhouse.

paw and wrestle but have never made a serious attempt to snap or slash at Cinder, the Kroschels or any visitors who have been introduced to them. Admittedly their lifestyle is unusual, but others in North America and Europe have hand-reared wolverines with similar results. Perhaps the failures have gone unreported, but there are enough verified accounts of affectionate, trustworthy wolverines to indicate that certainly not all members of the species are innately ferocious.

Shortly before visiting the Kroschels, I spent some time with Dean Wilson, a second-generation Alaskan trapper and a leading fur buyer in Fairbanks. Wilson and half a dozen other trappers who stopped by his warehouse during the course of an afternoon thought that stories about wolverines being furry Jack the Rippers were great stretchers or, to paraphrase a bit, absolute bosh. Several had occasionally had problems with wolverines who took baits or catches from their traps. All had heard stories, which they believed, of wolverines breaking into untended cabins or caches and taking edibles from them. None thought this was demonic behavior but only that of tough, opportunistic creatures doing, somewhat like themselves, the best they could in difficult circumstances.

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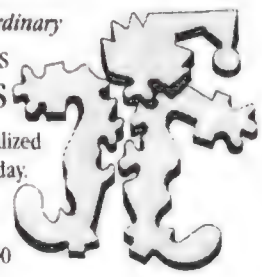

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native mammals. The semisubterranean badger (SMITHSONIAN, January 1990) is a specialized burrowing creature. The feats of the wolverine are more visible, various and impressive to other surface dwellers. Naturalists at Denali (formerly McKinley) National Park in Alaska once watched a 40-pound wolverine dragging the carcass of a 120- to 150-pound Dall sheep for nearly two miles down a rocky mountain slope, across a shallow river and up a steep bank. At a ski resort near Banff, in the Canadian Rockies, a wolverine repeatedly broke into an outbuilding used to store food. To put a stop to this, a trap chained to a 75-pound log was set. Eventually the wolverine was taken, but first, dragging the trap, chain and log, it climbed a wall of the building, broke through a barred window and escaped.

While completing a doctoral dissertation on wolverine ecology at the University of Alaska, Audrey Magoun spent five years studying the animals on the northwestern slopes of the Brooks Range. To catch, examine, mark and put radio collars on animals, she used a live trap constructed from 11-gauge-steel cyclone fencing of the sort used around secured military areas. Several times trapped wolverines escaped by pulling apart the heavy-duty mesh. On another occasion a fox entered and was captured in one of those live traps. A passing wolverine was able to pry apart the fencing sufficiently to reach in, kill the fox and pull it out, piece by piece.

Wolverine marks its territory by rubbing abdominal scent glands across stump.

Cornered in the wild, animal growls a warning and bares its formidable teeth.

Wolverines have a somewhat misshapen, top-heavy appearance, as if the head of a small bear has been mounted on the body of a bowlegged woodchuck. In taxonomical literature, the jaws and teeth of wolverines are invariably and rightly described as being "massive." Having become so equipped in the evolutionary course of things, wolverines are, among members of the North American fauna, the most effective and indefatigable large scavengers—the "hyenas of the North," as they are sometimes called. Regularly and rather easily, they grind up and ingest the carcasses, including hides, bones and hooves, of everything from moose and caribou on down in size. Trappers report that wolverines can, when ensnared, gnaw through planks, deadfalls and large logs to which sets have been chained.

Audrey Magoun found that wolverines in the Brooks Range subsisted almost entirely during the winter on carrion, with caribou remains being critical in their diet. There was no competition from bears who were hibernating and wolves who had migrated south, following caribou. Several adaptations allow wolverines to remain abroad throughout the year in their circumpolar range, which is too harsh or poor for other large carnivores.

Wolverines are notable cachers. In warmer months, they will bury pieces of caribou, moose, sheep, ground squirrels, even mice and birds. Later, when it is frozen, they will return for this meat. Some of these storehouses

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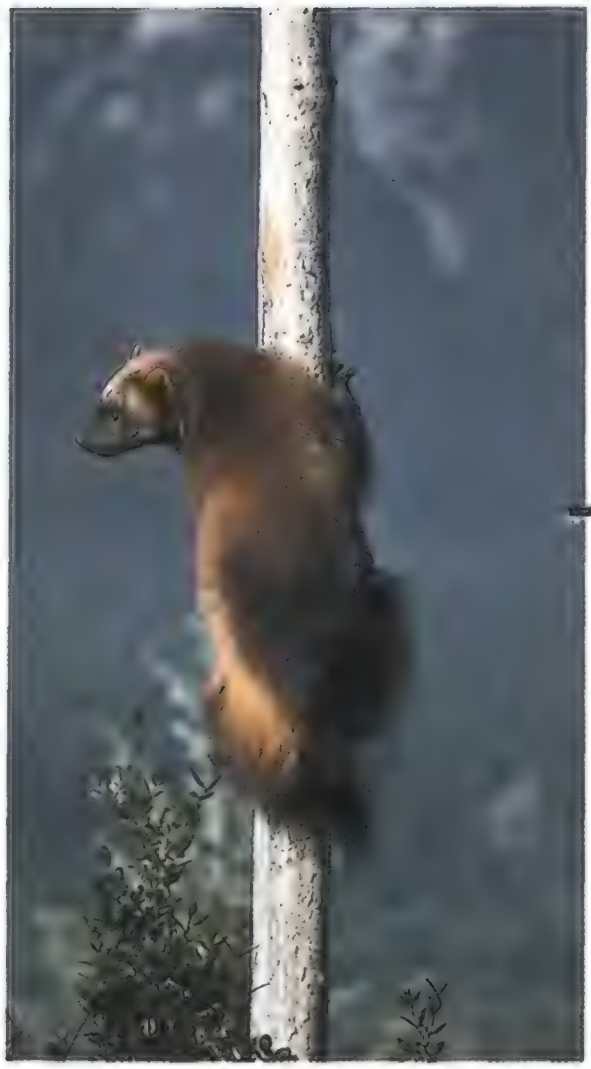
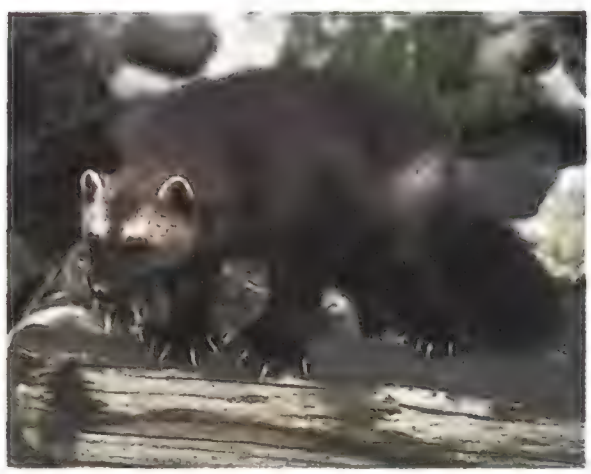
are sizable. A Russian zoologist has reported that one of them in Siberia contained 20 fox and 100 ptarmigan carcasses. In addition to making their own caches, wolverines feed on those left by bears, foxes and people.

The oversize paws of wolverines give them an advantage over most other large carnivores when traveling and foraging in deep snow country. Also their undercoats are dense and, because of a unique, tapering design, the outer guard hairs shed ice more readily than do those of any other mammal. This has been something of a mixed blessing, since long ago northern people learned that wolverine fur makes the best liner for parka hoods. Frozen breath will collect on these ruffs but can be easily brushed off, as is not the case with wolf, coyote or other trim furs. Therefore wolverines are trapped—300 to 400 a year are taken annually in Alaska—and their pelts are used locally for this purpose. Traditionally the rather coarse fur has not been otherwise fashionable, but there is an export market for whole, dead wolverines because taxidermists mount and sell them as Arctic curios. Every stuffed wolverine I have seen has been presented in the same way, with its head raised and teeth bared in a vicious snarl. The pose both reflects and perpetuates legends about the species' preternatural ferocity.

In addition to brute strength, wolverines have a deserved reputation for endurance. The first wild one I saw, about 20 years ago, jumped out of willow scrub along the frozen Middle Fork of Alaska's Koyukuk River, over which I was flying with a bush pilot. Since coming on a wolverine in the open is an uncommon happening, we circled to watch. Spraying snow, this one loped upriver, running with the odd humpbacked gait typical of all the weasels. After five miles, when we veered away, it was still going strong and seemingly at the same pace. In other cases where wolverines have been pursued from the air or by snow-machine, they have run for 40 miles without stopping.



Scampering nimbly up a tree, wolverine seeks refuge from two-footed interloper.



Impressive claws enable wolverine to climb, dig and rip through rough terrain.

The exceptional stamina of the species amounts to a specialized adaptation. Wolverines are not especially well endowed with speed, vision or hearing, but they have an incredible sense of smell. They hunt and scavenge continually, loping about the country taking whatever it has to offer. In many parts of their range, par-

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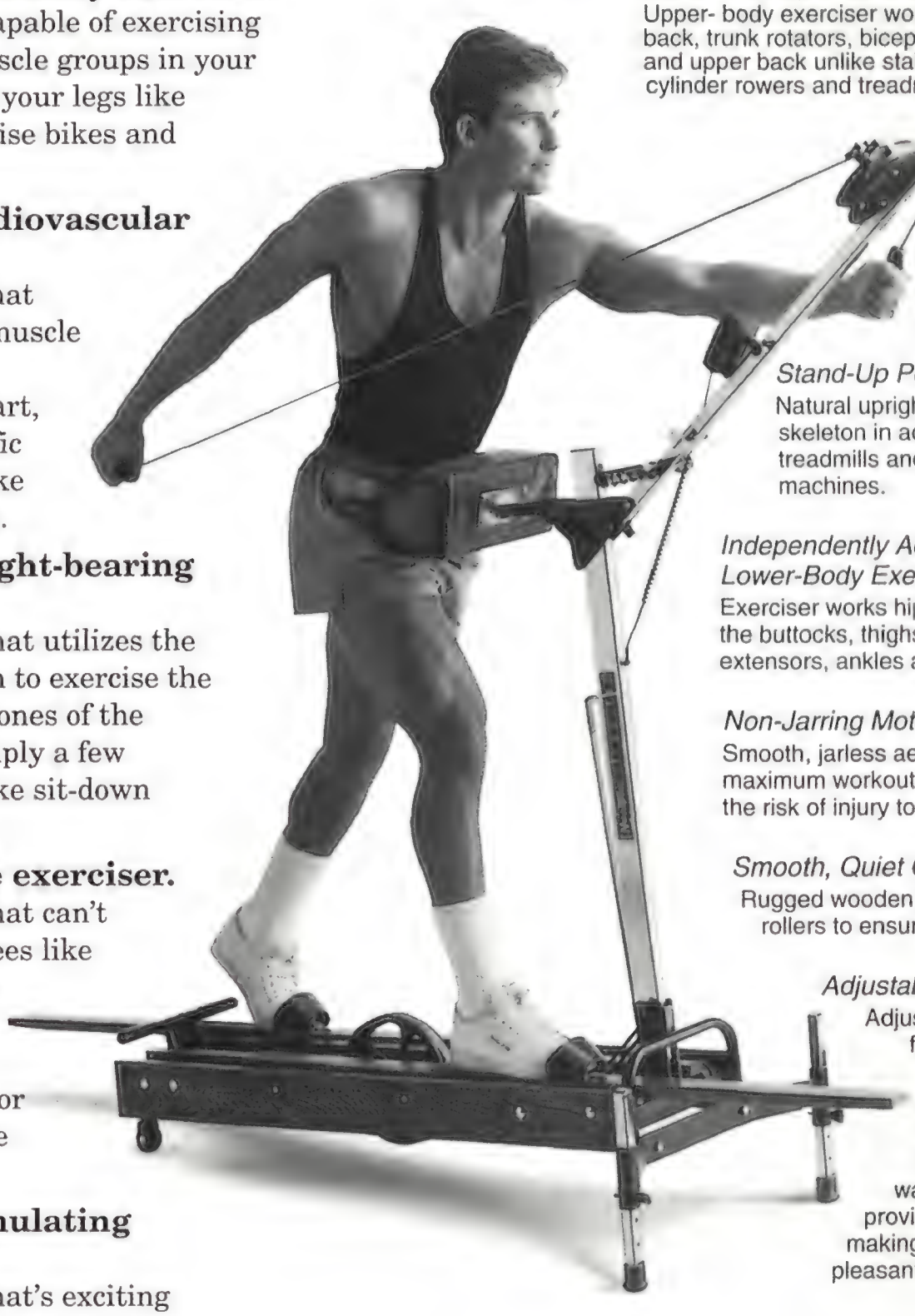

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ticularly in the winter, there is not much to be had and so they lope over a lot of country. Individual animals may occupy ranges of up to 400 square miles and travel 60 miles or so a day.

Recently I was given an overview of the routine activities of one wolverine and, generally, the niche of the species. Hoping to find at least signs of wolverines, I made arrangements to fly with Bill Lentsch, a veteran pilot who has the reputation of being one of the best aerial trackers in Alaska and is often employed by state game biologists for that purpose. On a bright, clear, though seasonably short January day, we headed off from Fairbanks in a slow, maneuverable Super Cub into a complex of narrow canyons, snowfields and glaciers from which the Wood River rises from the western Alaska Range. Lentsch thought this was a promising place to find signs of the moose-wolf-wolverine troika that heads the local food chain. It was.

In flats at the mouth of a tributary canyon, we came upon the trail of a pack of wolves and a single wolverine. In almost dioramic fashion, their signs illustrated the disparate styles of the two species. The wolves traveled with what seemed purposeful intent, following a path packed down by previous use. About halfway up the valley, we found them—four gray and two black animals. They had halted on a knoll that provided a vantage point over the surrounding country.

In contrast, the wolverine had crossed and recrossed the wolf road, circling and backtracking in the valley, climbing both sides of it to paw about on the drifts, in tangles of stunted spruce, under rocky outcroppings. At its head, the valley was reduced to a narrow, boulder-filled ravine. There the wolverine had continued climbing upward through drifts and over icy ledges for about 1,000 feet. Eventually it came to the base of a glacier where there were no signs of other living things, not even ravens, and the ground temperature would have been in the neighborhood of 30 below zero.

The wolverine trotted along the foot of the glacier until it came to the head of another valley and descended into it. We were able to follow this trail for about ten miles but saw no signs of the animal having found anything edible. Lentsch did not think this was unusual. "Sooner or later he'll get something—a few moose or sheep bones, maybe dig out a ptarmigan or surprise a fox. That's how they make it up here, just poking around the territory."

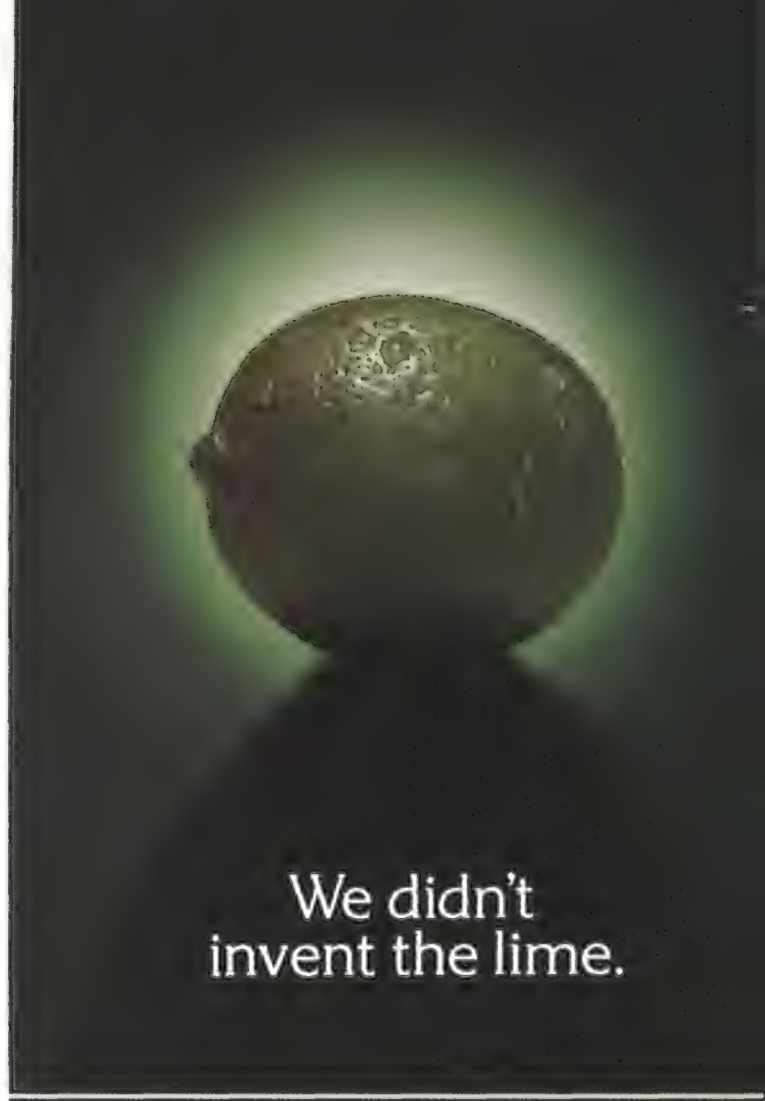
Not surprisingly, given their peripatetic habits, wolverines have little social life. Adults are solitary most of the year, but in the summer males roam about looking for females, whose territories are usually smaller. If they meet, a brief mating occurs and the males go on their way.

Because of delayed implantation, a phenomenon common among members of the weasel family, the embryos do not develop until the following winter. The young, usually two or three, arrive in midspring and are confined to their dens in rocky crevices or under logs or windfalls until they are weaned eight to ten weeks later. Thereafter the cubs emerge and commence opportunistically foraging with their mother. According to Magoun and others, there are few indications that much overt instruction is given or that the families hunt cooperatively. There are a few reports of young wolverines staying with their mother through their first winter, but more commonly they leave the family group in the fall, dispersing to establish individual territories.

As predators, wolverines are most active in the warmer months when they regularly hunt rodents, from beavers and porcupines on down to mice. They occasionally take smaller carnivores, as well as ground-nesting birds, eggs, fish and, very infrequently, fruits and berries. There are also documented accounts of wolverines preying on moose, caribou, reindeer and sheep. Most of these attacks occur in the winter, when wolverines are able to corner hooved species in deep snow and make repeated slashing attacks.

There are grand but very suspect tales about wolverines taking on large carnivores. One of the most spectacular was passed along by Nicholas Gubser, an anthropologist who spent time among the Alaskan Eskimos in the 1960s. One of his informants told

At 7 weeks, One Paw and Bear huddle for comfort. As babies, the animals are afraid of people, but they grow tame if raised by hand.



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him about a wolverine attacking a polar bear. The 1,000-pound bear immediately hugged the 40-pound wolverine to its chest. Then, writes Gubser in his book *The Nunamiut Eskimos, Hunters of Caribou* (Yale University Press, 1965), "using everything he had, the wolverine dug his way through the chest of the polar bear, apparently mutilating the heart or aorta before the bear was able to inflict a mortal blow. The polar bear rolled over dead and the wolverine walked away . . . the toughness and ferocity of a wolverine bring this account within the bounds of plausibility."

All of the wolverine persons I know think this story lies far beyond the bounds of plausibility. It is, however, a good illustration of one thing—the jokey inclination of Arctic residents to put on southern tourists with great northern whoppers.

There are less stirring but better substantiated observations of coyotes and mountain lions abandoning their own kills when approached by wolverines, and of bears prudently avoiding wolverines who were themselves feeding. Conversely, packs of wolves have been known to pursue wolverines when they catch them in the open and kill them. While making an aerial wildlife survey one winter along a tributary of the Nelchina River in Alaska, Bob Burkholder of the U.S. Fish and Wildlife Service spotted a dead wolverine on the ground near a frozen caribou carcass. Landing his ski plane to investigate, Burkholder found that a pack of eight wolves had scented either the wolverine or the caribou from about a mile away and veered off directly to the site. There they surprised the wolverine, a young female who weighed only 25 pounds. Three of the pack had closed in and killed her, but the wolves did not feed on the wolverine, perhaps because of the strong musk that she had exuded.

Only people are able and inclined to prey regularly on wolverines. They have been doing so for millennia to

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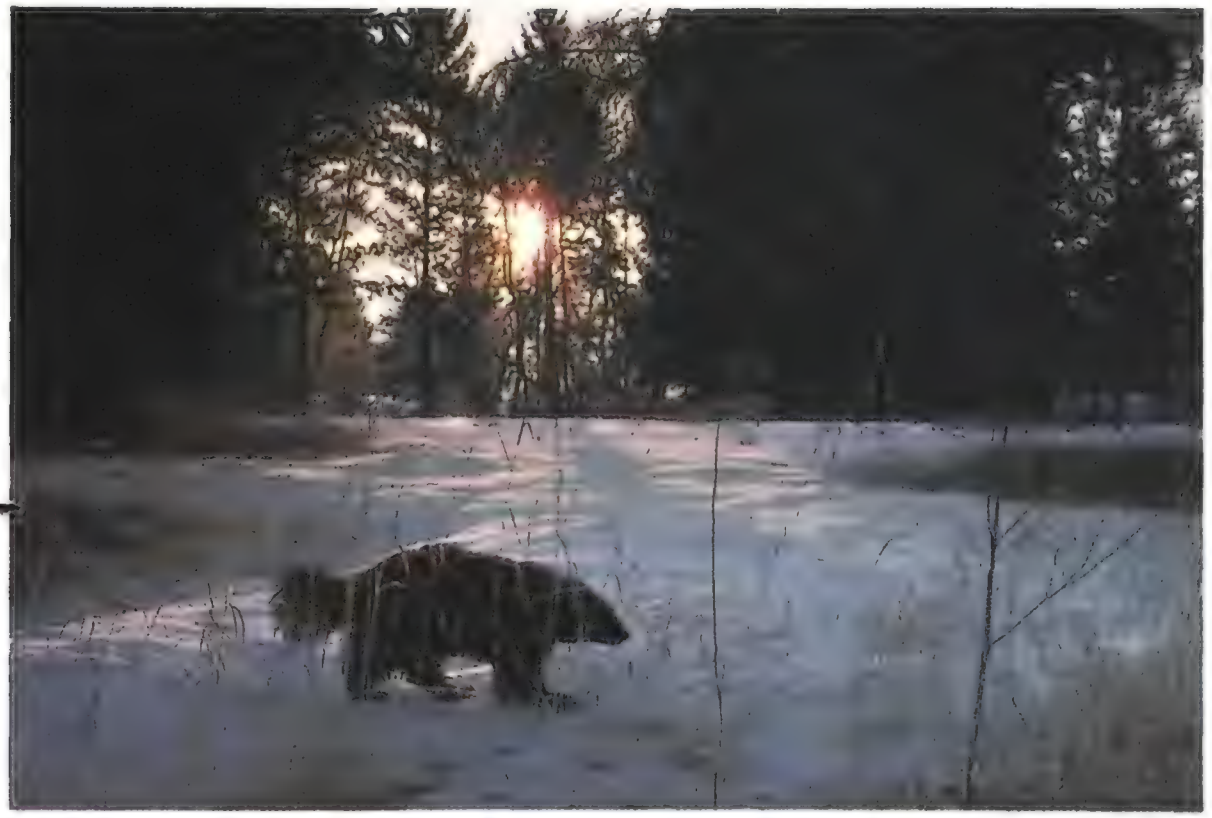

Wild wolverine ambles through a Montana forest. Big paws and great stamina make this member of the weasel family fit for foraging in snow.

obtain fur and because they regard the animals as destructive nuisances. Under even the best of conditions, wolverine populations are naturally small and widely dispersed. In the species' North American heartland—above the 55th parallel—numbers have at times been somewhat reduced in certain locales because of trapping and habitat alterations. Over all, however, they remain relatively stable. In the Far North, the animals seem to be in no great jeopardy because the demand for their fur is limited, and they inhabit some of the most inaccessible and inhospitable parts of the continent.

What is now the lower 48 states has apparently never been more than marginal range for the species, but in presettlement times wolverines were generally if thinly distributed throughout the Western mountains southward to central California and northern New Mexico. Now only in Montana are there enough of them left to permit trapping. There are small, isolated populations in Wyoming, Idaho, Washington, Oregon and the northern Sierra of California.

East of the Mississippi there have been no resident wolverines since the 19th century, when the last of them were extirpated by trappers, timber operations and agriculturists who considered them to be extremely undesirable varmints. Prior to that time, small numbers were found throughout much of New England, west and south through Pennsylvania, Indiana, Illinois, Wisconsin and Minnesota. The obvious omission from this list accounts for my own longstanding interest in these animals.

I was born and raised in Michigan, a descendant of people who had come there in the 1830s when it was already called the Wolverine State. As a youth, I sometimes asked why all of us, including Tom Harmon, Forrest Evasheski, Elroy (Crazy Legs) Hirsch and the rest of the mighty University of Michigan football team, were known as Wolverines. First, I was told that long ago, in the time of my pioneer ancestors, wolverines had abounded in Michigan. Second, I was told that they had been at least as formidable and ferocious as any lion, tiger or grizzly bear and were much more impressive than a Hoosier, Badger or Golden Gopher—that is, the wimpy totems of neighboring jurisdictions.

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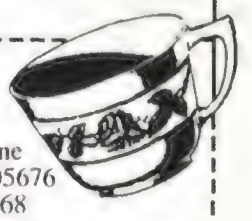

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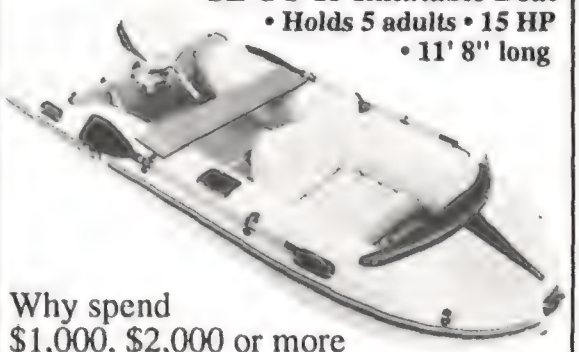

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Eventually I discovered that at least the first part of this explanation was, if not entirely false, greatly exaggerated. Given the fact that they inhabited adjacent states, there probably once were a few wolverines in Michigan, but nobody can be certain of this. The brutal truth is that there is nowhere a preserved specimen of a wolverine that indisputably resided in the Wolverine State.

Recently, to investigate this further, I called the holy shrine of legendary Wolverine-land, the athletic department of the University of Michigan. After a time I was provided with a public-relations release that says: "The University of Michigan's great football tradition dates back to 1867 when U-M students referred to their athletic teams as 'The Wolverines.'" A spokesperson for the Victors Valiant had no further information.

Next I had a conversation with Tom Burnett, a researcher in the graduate reference department of the prestigious University of Michigan library. Burnett said he had no idea why the wolverine was the state and university animal. After searching all of the relevant histories in the library, the only explanation he found, other than the apocryphal stories I had heard in my boyhood, was this undocumentable tidbit from the November 30, 1918, edition of the *Detroit Free Press*: "It is told how Conrad Tan Eyck, a tavern keeper near Detroit about 1800, made a specialty of wolf steaks. After a person had eaten a lamb chop or beef steak, [Tan Eyck] would ask 'Well how did you enjoy your wolf steak?' The nickname grew out of the reply of a young girl, who having been told that she had eaten wolf steak replied, 'Then I suppose I am a Wolverine.' The name is said to have been given first to those who had eaten at this inn, and afterwards to the inhabitants of the state."

If this story is true, Michigan, its residents, its university and its football teams are known as Wolverines because of a folk joke—and a rather shaggy dog one to boot. Hard zoological evidence suggests that the monstrous reputation of real wolverines may have originated in much the same way.

Leaping wolverine looks as sleek and agile as a fox. The animal is such an effective scavenger it is often called the "hyena of the North."

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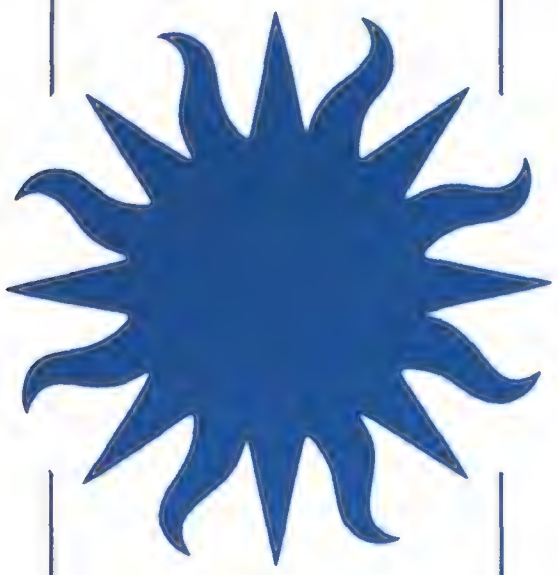

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Book reviews

French Dirt: The Story of a Garden in the South of France
Richard Goodman
Algonquin Books, $16.95/HarperCollins, $10 paper

"It wasn't a big garden. Or a sumptuous one," recalls Richard Goodman. "But that didn't matter. It was my garden, and I worked it hard and lovingly for the few months I had it—or it had me."

But before Goodman could tend his seedlings, he had to make the journey to his plot of land—a fragment of field on the outskirts of a small Provençal village. His trek to the vegetable patch really began one afternoon from his New York apartment. A freelance writer and confirmed citydweller, Goodman found himself staring at a newsletter ad destined to upend his life: "SOUTHERN FRANCE. Stone house in village near Avignon. 4BR, 2 baths, fireplace, books, desk, bikes. Perfect for writing, painting, exploring. $450 mo. plus utilities."

Goodman was living on a shoestring budget, but he had dreams: one of them was to flee city life for a year in rural France. Nine months later, he and a friend set off to occupy that "stone house near Avignon." Fortunately his companion, a Dutch woman, was adventurous and spoke good French.

Even so, that was scarcely enough to draw them into the life of the village. Goodman's first glimpse of St. Sébastien de Caisson was emblematic of its insularity: "[we arrived] at ten-thirty in the evening to an empty main square and a village so eerily quiet it seemed abandoned. . . . That the villagers had already gone to bed and were fast asleep seemed unlikely to our urban minds. But that was the case."

That silent square, with windows shuttered against the night—and outsiders—became the symbol of Goodman's challenge. His mission sounded straightforward enough: he wanted to make some friends. In fact, he had set himself a formidable task in a place where the inhabitants proved legendarily flinty and laconic, and where most family ties to the village stretched back 400 years or so.

The lure of Provence has, of course, been documented in sybaritic detail by Peter Mayle. His best-selling accounts of a transplanted Londoner's sojourn in Gallic lotusland (*A Year in Provence* and *Toujours Provence*) have won a huge audience. (The books also have caused mammoth traffic snarls, as tourists descend on his hapless village.) Goodman's chronicle is a welcome antidote to Mayle's version of paradise gained—where every cassoulet marks a milestone in the history of cuisine, and nearly every Frenchman emerges as eccentric, wise, ultimately lovable. (In the first place, Goodman preserved the anonymity of his destination by conferring a pseudonym, and he has produced an authentic portrayal of precisely how obdurate and unwelcoming a rural village can be.)

Goodman's first breakthrough resulted from necessity. Needing to replenish a dwindling firewood supply as winter stretched on, he fixed on barter as a solution: his labor in exchange for split oak. When he proposed this arrangement to the village woodsman, the response was astonishment and skepticism. "Work? But you're an American. You don't have to work." (In fact, he did need to work, his budget for the year being extremely meager.)

His initial assignment was a back-breaking one. On a chill December morning, a crew of villagers gathered in an empty field. After a tractor gouged shoulder-deep trenches, the men scrambled down to heave out stones and tear out roots. (The ground was being prepared for grapevines.) It was brutal work, as Goodman discovered when the day wore on: "Muscles I hadn't used in years had to be forced, at mental gunpoint, to go on." Yet he managed to persevere; he had created his own passage to the life of the village.

From then on, Goodman was called out as a day laborer for various tasks—planting melons, harvesting asparagus, helping prune fields of grapevines. He

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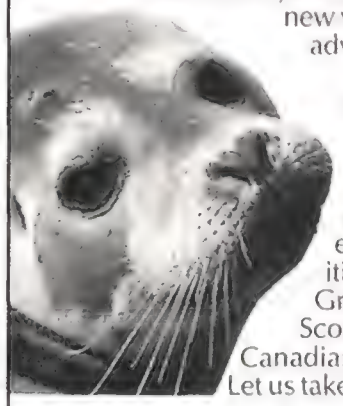

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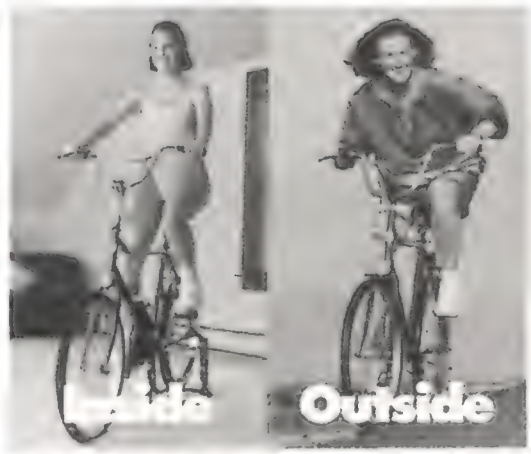

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also made the pivotal acquaintance of Jules Favier, master vineyard tender and a "strong, highly opinionated, most loyal French farmer." Favier not only held tutoring sessions on pruning, corrected Goodman's grammar with attention and ferocity, and opened the door to his large extended family, but he also made the garden possible.

Every family in St. Sébastien de Caisson tends a garden. These vegetable plots are the passionate preoccupation of spring and summer, a focus of conversation and competition. Whose tomatoes come in first? Whose lettuce grows most succulent? "All my life," Goodman reports, "I had wanted to have a garden. But I'd always managed to find myself living in large American cities in which the desire was thwarted."

Favier's father, as luck would have it, owned a plot of land on a riverbank at the edge of town. No rent would be extracted; the family wants Goodman to have his go at vegetable growing.

So it is that an American urbanite finds himself in a French nursery, running amok. "I was out of control," he admits, faced with the array of seedlings for sale. "I know I should have practiced a kind of gardening birth control. But I didn't. I was delirious." He finds himself lurching away with five kinds of lettuce, three of tomatoes, zucchini, eggplant, basil, parsley, string beans, carrots, radishes, melons, chives—and more, lots more.

And his garden (at least until the parching heat of summer descends) is a triumph. Everything cooperates with gusto, rewarding his efforts with bounty for the table—and even enough lettuce to feed a neighbor's rabbits. Such largesse, though, is almost beside the point. The garden takes on a life of its own: at last Goodman has arrived, with villagers stopping in the street to inquire after his tomatoes or offer advice on when to water. (This is no trivial matter, what with the sun broiling everything in sight.)

This is a book that calls for an easy chair to sink into, an afternoon to savor, and perhaps a pot of tea (verveine preferred). For armchair gardeners, for real green thumbs, for Francophiles or wistful admirers of the simple life, this droll and reverential chronicle of close ties to the earth will enchant, amuse and instruct.

Kathleen Burke is Book Review Editor at SMITHSONIAN.

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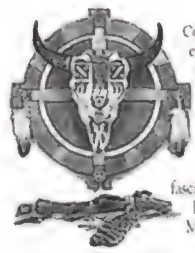

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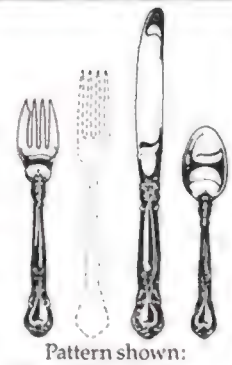

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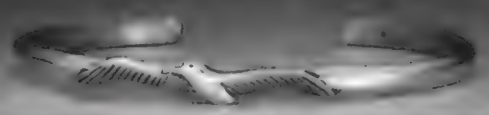

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Bones: A Forensic Detective's Casebook
Dr. Douglas Ubelaker and
Henry Scammell
HarperCollins, $23

When bodies or skeletons are discovered in unexpected places, they often end up in the hands of forensic anthropologists. These are the experts who study human remains for court cases or other judicial proceedings, determining as much as possible about the person who once inhabited that pile of flesh or owned that bag of bones. From shreds and patches of corporeal remains, forensic anthropologists attempt to reconstruct the age, sex, race, physical history, facial features and identity of their nameless subjects. They also try to specify the cause of death, time since death, and any events that affected the remains between the moments of death and discovery.

These are challenging tasks, demanding an uncommon blend of painstaking observation, high-tech science, hands-on experience and flexible thinking. But however intriguing such searches for the truth may be, the acknowledgments at the beginning of this book—a five-page list of police departments, sheriff's offices, prosecuting attorneys, medical examiners and coroner's offices—are more telling than the author's ironic dedication, "To life." Forensic anthropology is not a pretty business.

The remains that forensic anthropologists examine are seldom fresh and almost never clean. These investigators work with rotting flesh and gnawed, burned or battered bones—the physical evidence of an unexplained death—and their job is to dig into that gruesome debris and resolve as many questions about it as possible. They then testify about what their examination uncovered and how those findings should be interpreted. The evidence they describe and the events they reconstruct are never pleasant, and are sometimes so horrid they can hardly be contemplated without retching.

Yet *Bones* is a fascinating book. Partly this reflects the side of human nature that makes us gawk at accident sites, read true-crime novels, and watch too much of what appears on prime-time TV. But Douglas Ubelaker's boundless enthusiasm for his unusual profession is more central to this book's appeal. He simply loves complex puzzles, loves ferreting out the truth about events other people have tried to hide, and loves

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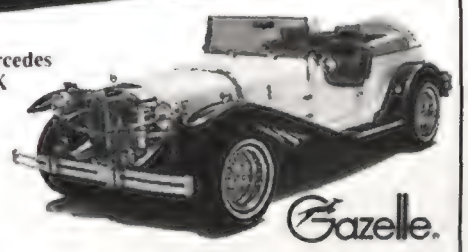

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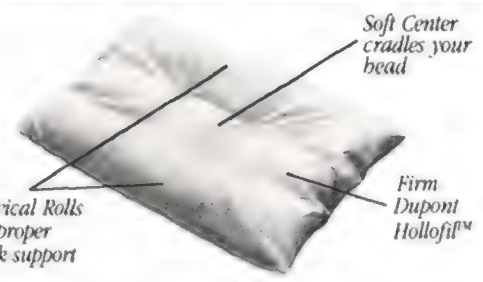

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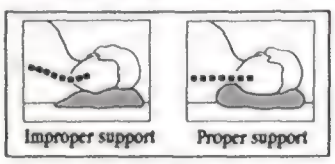

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teaching outsiders how it is done. For him it is the process and the results that count; that his work involves gruesome remains is almost immaterial.

From his office in the anthropology department of the "nation's attic" (where he is the Smithsonian's curator of New World physical anthropology), Dr. Ubelaker has been involved in a number of famous cases. He helped examine the remains of the victims of Alferd Packer, the 19th-century "Colorado Cannibal," who went into the mountains with five other gold miners one cold winter and emerged alone, suspiciously well fed, several months later. The forensic team discovered a variety of defensive wounds and butchering marks on the hands and arms of the five prospectors' bones—a grim result vindicating the Rocky Mountain wags who published *Alferd Packer's Wilderness Cookbook* and named a popular eating spot in Boulder the "Alferd E. Packer Grill."

Ubelaker also examined the skeleton of Dr. Carl Weiss, "putative assassin of Louisiana's Kingfish, the legendary Huey Long." Weiss had been shot full of holes by Long's bodyguards in 1935 (Ubelaker's autopsy "identified a minimum of twenty-three distinct trajectories and a possible twenty-fourth") after Weiss either shot Long in the belly or, more likely in some people's minds, was unwise enough to punch the heavily guarded Louisiana politician in the mouth.

Finally, Ubelaker has signed on with the group proposing to exhume the bodies of Lizzie Borden's parents, to see if they really received those famous whacks from the verse's famous ax.

Notorious historical cases, however, are but a fraction of the hundreds of forensic examinations Ubelaker has been involved in since joining the Smithsonian in 1971. He is usually sent a more or less complete corpse or skeleton and asked to discover as much as he can about the dead person's identity and/or probable cause of death. Sometimes his testimony only confirms some aspect of a nearly complete case, but in other instances he is the judicial system's last hope for resolving the mystery of an unidentified body's untimely demise.

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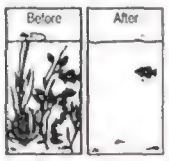

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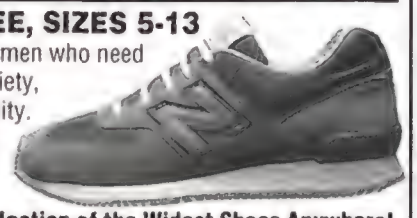
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charred bones. Ubelaker has studied bodies that were stuffed down chimneys, cut up with chain saws and pulled out of cisterns; bodies that were buried or burned or dragged out of the woods by dogs. Each one is different. Yet all have been subjected to systematic processes that left diagnostic marks for an expert to read.

Ubelaker and freelance writer Scammell, who collaborated on an earlier book, reveal how each kind of evidence is interpreted by discussing related cases in a series of topically organized chapters. A victim's sex is revealed by the shape of the pelvis or skull. Age can be deduced from teeth or from skeletal sutures (places where bones grow together as a person ages). Because flesh rots, cartilage decays and exposed bone weathers at reasonably predictable rates, it is often possible to estimate the amount of time that has passed since a victim's death. Teeth, facial structure, vertebrae and healed injuries are frequently distinct enough to identify a victim when x rays are available from the medical records. Causes of death are often evident from the distinctive marks left by various weapons and forms of mayhem.

The details of this anthropological Sherlocking are so intriguing that the human tragedy narrated by each deconstructed skeleton sometimes slips from sight. But then a detail—a victim's hair color, an incident in his or her life, or some aspect of the body's disposal or discovery—brings reality back. The only relief comes from Dr. Ubelaker's conviction that his work represents "the victim's last chance to be heard." It is a grim litany these silent witnesses speak, but they are voices that society needs to hear.

John R. Alden is an archaeologist currently conducting research in Chile.

Mama Poc
Anne LaBastille
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Anne LaBastille was a young scientist running nature tours in the Caribbean and Central America when she first encountered the jaunty, flightless bird known as the giant pied-billed grebe. Called "poc" by Guatemalan Indians, the grebe lived only in the reed beds of a single large lake in Guatemala, Lake Atitlán. When the blonde *gringa* who eventually became known as "Mama Poc" discovered the grebe population and conducted her first census she counted 99 of them.

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She was drawn to the endangered waterbird at first because so little was known about it, a void she set out to fill. Dividing her time between her upstate New York cabin and Guatemala, she began systematically studying the characteristics of this creature with a profile so low that no photographs or drawings of it had ever been made.

She gathered data about the courtship, breeding and feeding behavior of this loonlike bird confined to some 15 miles of shoreline reeds on Atitlán. Recognizing the danger of extinction inherent in a small population with a single habitat, she also began thinking about how to save the poc.

Mama Poc is the story of her brave, initially encouraging and ultimately doomed struggle. Confronting near-unanimous indifference, with the help of a support crew that at first numbered only four, she sallied forth to create a sanctuary, monitor the population and levy war against any force that threatened them.

Natives called her the "crazy bird lady," but she was remarkably successful: she obtained grants from the World Wildlife Fund, the Smithsonian Institution and other organizations to help build a refuge. She worked out a creative compromise with the Indians who harvested the reeds—essential to the grebe's survival—as a cash crop. She persuaded the Guatemalan government to designate the grebe's habitat as the country's first wildlife refuge.

As LaBastille launched education programs and increased her corps of poc boosters, the bird made steady progress. For a dozen years its numbers increased, from 82 to 150 and then to 200 of what LaBastille estimated as a carrying capacity of 280. She also helped halt a proposed hydroelectric project and inspired an international campaign to save the bashful poc.

It was a curious combination of Man and nature that eventually killed the grebe. Nature struck first, an earthquake that ripped large cracks in the lake bottom and consequently lowered its level until much of the reed habitat, including the sanctuary, was high and dry. Pollution, from the soap used by women washing clothes in the lake and, more insidiously, from direct sewage discharge from the weekend houses and condos that mushroomed on the lake in the 1970s and '80s, did the rest.

LaBastille fought vainly for protec-

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tive legislation in a country where such a concept still baffled most people. Politics and war intervened as well: a local man who had developed under LaBastille's tutelage into a skilled and sensitive ecologist-game warden was killed by guerrillas.

In the end she could barely stand to be there any longer. Poc numbers turned downward after the quake and declined from then on, dropping to below 100 and then below 50, the point where extinction becomes inevitable. Captive-breeding wasn't feasible because scientists still hadn't learned enough about poc reproduction. By 1988, in a kind of valedictory census, LaBastille could find only one pair on the still-beautiful lake with its border of steep-flanked volcanoes. The number of lakeside chalets, meanwhile, had soared from 28 in 1960 to 449.

This is an extraordinary story, the only instance I know of where a deeply involved, expert eyewitness has been able to chronicle, in painful, step-by-step detail, the extinction of a species. LaBastille does it in a commendably even-toned way, with little stridency or moralism.

Ultimately, as she writes, "I could not fight an earthquake, civil war, uncontrolled real estate development and a human population explosion." And so the giant grebe vanished. In a kind of final, ironic salute, the bird was selected in 1986 as the symbol of an international event, the Central American Olympics—at a time when it was already officially extinct.

Donald Dale Jackson writes from his home in rural Connecticut.

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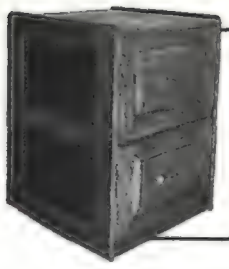

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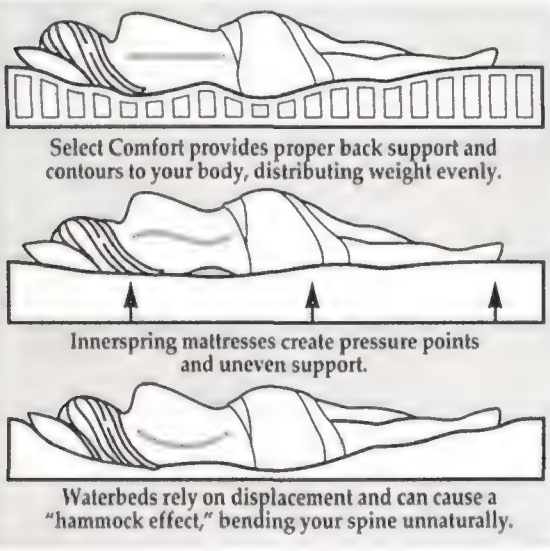
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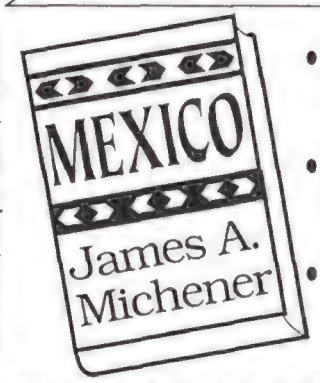

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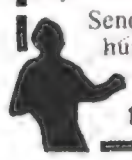

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Italy Cruise *April 27-May 12* Aboard the *Regina Renaissance.*

Rhodes, Crete and Santorini *April 30-May 14*

Countryside Tours *May-October* Relaxing sojourns in France, England, Italy, Austria, Switzerland, Czech Republic, Ireland and Mexico.

Sicily and Southern Italy *May 4-19*

Western Turkey *May 11-26*

NEW **Israel-Cyprus-Turkey-Greece Cruise** *May 26-June 12* Aboard the *Aurora I.*

Scotland's Highlands and Northern Isles *May 28-June 12*

China Tours *June-October* Seven itineraries.

Odyssey of Flight *June 3-14* Paris Air Show.

NEW **Canterbury Tales** *June 3-15*

NEW **Bohemia and Moravia** *June 6-20*

Inside Ireland *June 7-18*

Poland *June 9-22*

Victorian Holiday: England by Train *June 17-28*

British Isles Cruise *June 23-July 7*

NEW **Maritime England** *July 1-13*

NEW **Musical White Nights (Russia and Finland)** *July 3-15*

Iceland Adventure *July 11-24*

Swiss Walks *July 16-29*

Historic Nova Scotia *July 18-29*

Tibetan Journey *July 21-August 7*

Canadian Rockies *July 24-August 2* Hiking.

Kenya Wildlife *August 3-20*

Amsterdam to Lisbon Cruise *August 4-18* Aboard the *Regina Renaissance.*

NEW **Rhine-Mosel Cruise** *August 5-19*

NEW **Swiss Alpine Hike** *August 7-21*

Trans-Siberian Railroad *August 8-22*

Edinburgh Festival *August 16-26*

Switzerland by Train *August 19-31*

Russia's Golden Ring *August 20-31*

Baltic Nations *August 24-September 6* Estonia, Latvia, Lithuania.

French Waterways: Paris to Burgundy *August 27-September 7*

NEW **Mongolia-China** *August 29-September 19*

Indonesia *September 1-23*

NEW **Chianti Walks (Italy)** *September 2-14*

Zimbabwe-Botswana *September 16-October 3*

DOMESTIC STUDY TOURS

Smithsonian "Anytime" Weekend (Washington, D.C.) Two-night package includes hotel and behind-the-scenes tour. Now enjoy expanded opportunities to attend lectures and concerts at Smithsonian museums.

Okefenokee (Florida) *May 1-6* Canoeing.

Spring Gardens (Delaware Valley) *May 3-9*

NEW **Delta Queen** *May 8-21* Pittsburgh to New Orleans.

Hudson River Historic Homes *May 15-20*

Arches and Canyonlands *May 16-23*

Historic Boston *May 19-23*

Smithsonian Treasures (Washington, D.C.) *May 19-23* For Contributing Members.

Native Cultures of the Southwest *May 23-June 2 or August 22-September 1*

Grand Canyon Rafting *May 28-June 6 or August 20-29*

NEW **Accessible Adventures** *June-February* Outdoor programs designed for people with and without disabilities.

Smoky Mountains Hiking *June 5-13*

Alaska's Inside Passage *June 6-19*

Alaskan Landscapes *June 11-22 or July 9-20*

Chicago Architecture *June 16-20*

NEW **Route 66: Scenic Southwest** *June 18-26*

California's National Parks *June 19-26*

Frank Lloyd Wright in Wisconsin *June 20-26*

NEW **Yellowstone Hiking** *June 20-29*

NEW **Massachusetts Heritage** *June 26-July 4*

Oregon *July 4-11* Natural history.

NEW **Beyond the Bering Sea** *July 11-21* Alaska to Siberia.

NEW **Minnesota's Boundary Waters** *July 13-18* Canoeing.

Railroading the Rockies (Colorado) *July 16-24, July 30-August 7 or August 20-28*

Colorado for Families *July 17-23*

NEW **Santa Fe Music and Gardens** *July 18-25*

Cowboys and Outlaws (Wyoming) *July 27-August 7*

NEW **Orioles Baseball (Baltimore)** *July 29-August 1*

NEW **Life Styles of Coastal Maine: An Insider's View** *July 31-August 8*

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Southern California Ecology (Santa Catalina Island) *May 23-28*

Birds and Wildflowers (Jackson Hole, Wyoming) *June 7-12*

Discovering the Blues (Chicago) *June 21-24* Meet top musicians; tour Chicago.

Paris *June 24-July 6*

Billy the Kid (Lincoln, New Mexico) *July 27-31*

Hawaiian Botany/Volcanology (Hilo) *August 8-12*

Adirondack Ecology (Blue Mountain Lake, New York) *August 8-13*

Mackinac Island Heritage (Michigan) *August 23-26*

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Bali, Indonesia *April* Work with anthropologists to document religious, musical ceremony.

Crow Agency, Montana *April 14-20* Record the everyday life of the Crow Indians.

Costa Rica *April 17-29 or July 24-August 5* Monitor an active volcano.

Washington, D.C. *April 18-May 1 or August 1-14* Assist in the preservation of Polynesian bark cloth.

Maricopa, Arizona *May 9-15* Help create a garden at a native-American museum.

Worland, Wyoming *June 19-July 1 or July 4-17* Excavate remains of dinosaurs.

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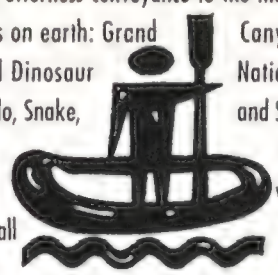

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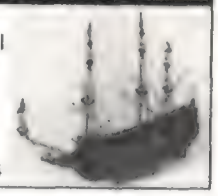

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By Avery Comarow

A techie's toast: 'Here's looking at you, kit'

It was 1958 and my 13th birthday was coming up.

"I want a VTVM," I said.

My father's forehead furrowed.

"A Heathkit vacuum-tube voltmeter, for measuring voltage and resistance. I'd build it. It's $24.95. Maybe a couple of dollars more for shipping."

My father can handle a hammer and straightedge with alacrity and skill, but there were no Heathkits or vacuum-tube voltmeters when he was a kid. Sure, he said, perplexed. OK.

I plugged in my soldering iron, sorted out the resistors and capacitors, and plunged in. Some instructions I read. Others I ignored. My eyes swept past Heath's poster-size diagrams showing the exact placement of each tiny part on the circuit board. Intuition told me to stick the tips of the wire leads into the board and solder everything in place. A rain forest of vividly-hued componentry trembled on skinny wire stalks above the circuit board when I was done, and the VTVM didn't work.

I took it to a friend who fixed radios and televisions in his spare time. He stared at the mess, his face as unreadable as a poker player's. I should have tucked the parts tight up against the circuit board, he explained. It took several days to undo the damage, but finally I could measure voltage and resistance.

Kit-smitten, I tore into more Heathkits. A two-tube ham radio transmitter, the DX-20, followed. I stayed home sick (Mother knew better) the day after my ham license came. I didn't have a real antenna, so the window screen in my bedroom was pressed into service. It worked. My nervous, halting dots and dashes tossed into the ether found an ear in Florida. Jim was his name. He answered me, gearing down his natural sending speed tenfold for my benefit. We exchanged Morse code greetings through the static crashes. Sweet radio mystery!

The Heath Company and I worked out a relationship: I supported them, if not lavishly; they kept introducing new kits. I lost count at 40 or so. Stereo systems. Tuners. Amplifiers. Receivers. Speakers. A bizarre record changer that hissed to a stop during the changing cycle to keep the records from grinding together (years later I learned that all LPs have raised rims to prevent just that). Signal generators. Oscilloscopes.

Night after night my little 30-watt soldering iron sent pungent rosin smoke curling ceilingward. The hour would grow late, and my fingers would fumble to clutch tiny 2-56 nuts and turn them onto tiny bolts. Occasionally I erred. Then I would consult St. Joseph, Michigan, where banks of nonjudgmental Heath technicians handled calls from confidence-impaired customers.

I left home but couldn't kick the habit. When I married, my wife had to stay out of any room where I was kitting; I didn't want anybody bumping into my muffin tins full of stuff. A transistor that fell into the rug would simply vanish. My last Heathkit, built in the late 1970s, was a 19-inch color television. It worked great until a year or so ago.

The question of motive raises its inquisitive head. Did my labor save money? I spent 50 hours building the TV–spread over more than a month of evenings and weekends–for no cash return; my labor was worth nothing. The TV cost about $650 after buying the cabinet (an extra-cost item–classic Heath). I could have bought a ready-made model for that. Probably less.

I didn't try to figure out the kit thing until I stopped doing it. Then, of course, it was obvious. I could mess around like a 9-year-old with a chemistry set, but instead of sulfur fumes my prize would be a high-tech gadget. I was an engineer without portfolio.

Back then, electronics also constituted Art for persons inclined to slide rules and horn-rims. Brightly banded resistors and fingernail-size ocher capacitors neatly laid out in rows on translucent green circuit boards, multicolored cables tying the boards together into a pleasing whole, constituted a techie esthetic. At one point, Heath promoted the "beautiful birch cabinet" of one of its lab instruments, and the "attractive two-color panel" of a tube tester.

I was not alone in my admiration. Heath prospered during its quarter-century heyday that spanned the 1950s, '60s and at least part of the '70s, selling kits to millions of teenagers and postadolescents–a crew almost exclusively male, according to Heath's market research, and no surprise, either.

A year ago Heath announced that it was leaving the electronic kit business. I picked up the phone. "How can you do that?" I sputtered. The company spokesperson, a woman, was unemotional. She was from a different era. People don't have time to build kits anymore, she said, marketing data flickering through her head.

She had a point. It had been more than a decade since I assembled my last kit. But it's more than a squeeze on spare hours. It's also the loss of esthetics. Electronics no longer has a soul; like much of today's technology, it is functional but cold. Every VCR looks like every other VCR. All the cabinets are gray or black. Quite frankly, I can't even tell which button does what; somehow the digital displays seem to flash 12:00 within a couple of days no matter what I push. The soft glow of a vacuum tube will soon be relegated to nostalgia and the memories of codgers like me.

The *New York Times* put the Heath story on page one. It was tender and elegiac. I knew: another kit guy.

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